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ON

BRITISH MILITARY SURGERY IN THE TIME OF HUNTER AND IN THE GREAT WAR.

Delivered before the Royal College of Surgeons of England on Feb. 14th, 1919, the Anniversary of Hunter's Birth,

BY SIR ANTHONY BOWLBY, K.C.M.G., K.C.V.O., C.B.,

TEMP. MAJOR GENERAL, A.M.S.; CONSULTING SURGEON, BRITISH ARMIES IN FRANCE; SURGEON IN ORDINARY TO H.M. THE KING; SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

FROM PARÉ TO HUNTER: LACK OF PROGRESS.

In the year 1792 John Hunter finished the last of his works and dedicated it "To the King."

"May it please your Majesty.

In the year 1761 I had the honour of being appointed by your Majesty a surgeon on the staff in the expedition against Belleisle.

In the year 1790 your Majesty honoured me with one of the most important appointments in the Medical Department of the Army, in fulfilling the duties of which every exertion shall be called forth to render me deserving of the trust reposed in me and not unworthy of your Majesty's patronage.

The first of these appointments gave me extensive opportunities of attending to gunshot wounds, of seeing the errors and defects in that branch of military surgery, and of studying to remove them. It drew my attention to inflammation in general, and enabled me to make observations which have formed the basis of the present Treatise. That office which I now hold has afforded me the means of extending my pursuits and of laying this work before the public."

This dedication is dated "Leicester Square, May 20th, 1792," although Guthrie states that "the work was not published until 1794"—i.e., the year after Hunter's death; but in spite of the fact that more than 30 years had passed since the period of Hunter's active service before he published his treatise, yet his interest in what he had seen at Belleisle remained so keen and his description of individual cases is so vivid that it might easily be supposed he was describing events of very recent occurrence. The whole "Treatise" is quite short, and occupies only 56 pages in the octavo edition of 1828.

In the "Roll of Commissioned Officers in the Medical Service of the British Army," by the late Colonel William Johnston, C.B., and published in 1917, Hunter's record reads as follows:—

"John Hunter, Surgical Staff, Great Britain, 30th October, 1760. Half pay, 1764. Full pay, Assist. Surgeon General, 4th January, 1786. Surgeon General and Inspector of Regimental Hospitals, 17th March, 1790. Died October, 1793. Belleisle, 1761. Portugal, 1762."

An interesting fact which is not commonly known is supplied in this brief statement, for it appears that Hunter had acted as "Assistant Surgeon-General" for four years before his appointment as Surgeon-General.

At the time when Hunter went to Belleisle just 200 years had passed since Ambroise Paré had published his collected works, and it is not too much to say that military surgery had not advanced materially since his death in 1590. This lack of development was certainly not due to lack of opportunity, for the 200 years had been years of war, and firearms had quite replaced the arrows and bolts which in Paré's day were still frequent causes of injury, in spite of the then recently invented culverins and arquebuses.

A hundred years later than Paré, the great English surgeon, Wiseman, had written the most important treatise published since the time of the French master, and in the same year that saw the attack on Belleisle, Ranby, who had attended King George the Second in his Flanders campaigns, published a little book on gunshot wounds.

In France the successor to Paré was Le Dran, who in 1740 produced a considerable work on gunshot wounds based largely on Paré.

It would appear that the authors I have here enumerated were the only guides to whom Hunter could have turned for help and counsel when he set out to the wars. It is, however, noteworthy that he does not refer by name in his treatise to any surgical author at all, and that on the other hand he notes—

"Little has been written on the subject ..... and what has been written is so superficial that it deserves but little attention."

It was, indeed, left for the following century to provide at its very commencement the men whose work, expanding and extending that of Hunter, laid the foundations of the military surgery of the nineteenth century, and the names of Larrey in France and Guthrie in England will for ever be associated in this connexion.

HUNTER'S WAR EXPERIENCES.

It is of interest to glance for a moment at the wars of John Hunter's life-time.

Marlborough's campaigns had ended in 1711, before Hunter's birth, after his successful, but fruitless, attack at Arleux on the French line of trenches which lay across France from Namur to the sea at Montreuil, but Hunter was a youth of 17 years when, in the campaign of 1745, the battle of Fontenoy was fought. From that time until shortly before the attack on Belleisle there was a lull in the fighting and again, after 1763, there ensued a long period of peace, as far as England was concerned, except for the wars in America and India. It thus happened that the opportunity for further work in military surgery was lacking, and Hunter's careful notes of his cases made in 1761 remained without the additions which further wars would no doubt have provided.

His experience of military surgery in the field was thus limited to the Belleisle and Portuguese expeditions, and a brief description of these little known naval and military operations in which Hunter served will not, I think, be out of place. To Mr. A. D. Cary, the librarian of the War Office, I am much indebted for some of the following details.

Belleisle.

The first of these expeditionary forces consisted of about 10,000 troops under the command of General Hodgson, and was escorted by a powerful squadron of eight ships of the line and several frigates under Admiral Keppel. Its object was the capture of the island.

Belleisle is off the coast of Brittany and is about 12 miles in its greatest length and about 5 miles in its greatest width. It is surrounded by precipitous cliffs and forms a natural fortress. The chief town was on the northern edge of the island and was protected by a citadel, garrisoned by about 4000 men under the command of the Chevalier de Saint Croix.

According to the French historian, this garrison was very insufficient, and "Saint Croix, in order to deceive the British as to its numbers, mounted 50 volunteers on farm horses of the island, his efforts being admirably seconded by the female population. The women asked permission to help in this deception, and formed a squadron clothed in red capes. Those who had no horses mounted cows." (Waddington's "La Guerre de Sept Ans.")

The first attack took place on April 8th, and after an initial success, resulted in the repulse of the British with the loss of about 450 killed, wounded, and prisoners. Of these there were rescued 75 British wounded, and there were also captured 54 wounded Frenchmen. All these appear to have been taken for treatment to the ships. A second attack on April 22nd was successful in occupying the island and driving the defenders into the citadel, where they withstood a siege for nearly two months, and finally surrendered on June 7th.

The French estimate of their own losses was 200 killed and 450 wounded, while Fortescue states that "the losses of the British throughout the whole of the operations were about 700 killed and wounded," and he adds: "Thus was Belleisle secured as a place of refreshment for the fleet." It was restored to France on the conclusion of peace in 1763.

Portugal.

After the capture of Belleisle Hunter remained as one of its garrison for nearly a year, for it was not until the summer of 1762 that the opportunity came for some of the troops to embark on an expedition to Portugal, and there is no doubt that he accompanied this force.

The explanation of this event is thus described by Fortescue:—

"The Spaniards on the pretext of Portuguese friendship with England, in April 1762, invaded Portugal, overran that country as far as the Douro from the North, and threw another force against Almeida from the East. The injured kingdom appealed to England for help, and in May orders were sent to Belleisle for the departure of four regiments of infantry together with a detachment of the Sixteenth Light Dragoons to Portugal. Two more regiments were added from Ireland, bringing the total up to about 7000 men." (Fortescue's "History of British Army," vol. ii., p. 546.)

The force stood on the defensive to cover Lisbon and the line of the Tagus, but on August 27th Brigadier-General Burgoyne with 400 troops and the Grenadier company of the Buffs surprised and annihilated a regiment of Spanish infantry and took Valentia with very few casualties.

On Oct. 4th another attack again took the enemy by surprise and resulted in the capture of six guns and other booty, with great loss to the Spaniards, but at the cost of only one man killed and eight wounded to the British. The results of this expedition are thus summed up in the "Historical Records of the Third Foot" (The Buffs):—

"This advantage being obtained at a critical moment was attended with important consequences; the enemy was disheartened, the season for military operations was far advanced, heavy rains fell, the roads were destroyed, and the Spaniards fell back to their own frontiers. Thus Portugal was saved by British valour and British skill."

Such, in brief, were the two expeditions in which Hunter saw active service, and it would appear that in Portugal there were very few casualties.

It is probable that in the Belleisle expedition the wounded numbered about 500, although by no means all of them could have been under Hunter's care. It is, however, likely that some of the patients were kept on the island until they had recovered, and so were under treatment for a long time.

It is also evident that a certain number of the French wounded were left to the care of the British surgeons, for it was provided by Article XI. of the capitulation that "the officers and soldiers who are in hospital in the town and citadel shall be treated in the same manner as the garrison, and after their recovery shall be furnished with vessels to carry them to France."

Hunter's Position at Belleisle.

The actual position occupied by Hunter during his stay on the island has hitherto been somewhat uncertain. I have,

however, been fortunate enough to be supplied by Professor F. Wood-Jones with a letter which shows that Hunter was not merely one of a surgical staff, but was in charge of the hospital, for in addition to his appointment as "staff surgeon," he is described as the "Deputy Purveyor," and in that capacity he was supplied by the Government with money to be spent on the hospitals by himself. The letter is dated April 12th, 1762, and was written only a short time before the forces at Belleisle were embarked for Portugal. It is as follows:—

"Belleisle, 12 April, 1762.

SIR,—The Hospital here being in want of money as appears by a letter sent to me this day by Mr. John Hunter, the Deputy Purveyor thereof, a copy of which is hereunto annexed. I have in compliance therewith issued my warrant to you of the same date as this letter for the sum of Two Hundred Pounds payable to the said Mr. John Hunter for the use of the said Hospitals, without deduction, but upon account, and do hereby direct and desire (as the Lords of the Treasury have not issued any money to you for the contingencies of this garrison) that you will pay the same out of the money which you have in your hands for the subsistence of the Troops here.

I am, Sir,
Your most humble servant,
To Charles Bembridge, Esq., H. A. LAMBART.
Deputy Paymaster-General to Forces at Belleisle."

An examination I have made of the "Journals of the House of Commons" has disclosed other payments as follows:—

"December 27th, 1761, to John Hunter, Esq., for the use of the Hospital £300.0.0."
"March 10th, 1762, to John Hunter, Esq., for the use of the Hospital £100.0.0."
"April 12th, 1762, to John Hunter, Esq., for the use of the Hospital £200.0.0."

It seems, therefore, that Hunter was both the staff surgeon and also the chief administrator of the British Hospital at Belleisle. But, small though the number of wounded was in those days when compared with the tens of thousands of the present day, it is evident that at Belleisle it was sufficiently large to provide Hunter with food for much thought and study. He had no other duty except to care for his soldier patients, no other problems to solve save those of gunshot wounds, and we can picture him on the sea-girt cliffs pondering over the questions which presented themselves to his busy brain and shaping the newly born thoughts of inflammation suggested by his first experience of war.

It seems to me very possible that we owe more to that period of contemplation on the remote island of Belleisle than has ever yet been guessed, and as we find Hunter himself saying of his experience of war 30 years later, "it drew my attention to inflammation in general," we shall not be far wrong if we conclude that the germs of much of his most important later work were brought to life in the quietude which followed the siege and capture of the citadel.

THE MILITARY MEDICAL SERVICES IN THE EIGHTEENTH CENTURY.

At the time of Hunter's appointment as Surgeon-General in 1790 the Army had but one Physician-General and one Surgeon-General, who were elected from the ranks of eminent civilian practitioners of the day, and it was the duty of the first to supply physicians to the Army and of the second to examine all candidates for appointments as surgeons. The Surgeon-General also recommended surgeons and "surgeons' mates" for appointments to hospitals and regiments.

In times of peace these duties were not arduous, for the standing Army was small, but when in 1793 we were obliged to raise ever-increasing armies for the war in Flanders it became impossible to provide the necessary surgical staffs. Hunter must have had many anxious hours at a time when his health was failing, for his own death occurred within six months of the declaration of war. I will therefore ask you to consider the condition of the Medical Services in the eighteenth century and the difficulties which were inherent in supplying the troops with efficient medical officers.

Inadequate Pay and Status.

The Army Medical Service both before and during Hunter's lifetime left very much to be desired, and the pay and status were such that they offered no inducement to men of skill or learning.

John Woodall, writing in 1639 in his book called "The Surgeon's Mate," says: "And for the surgeons in his Land service he (The King) alloweth to the Surgeon-Major of the whole camp five shillings a day. Also his Majestie alloweth to each Surgeon two shillings and sixpence a day, which is three pounds and fifteen shillings a month, and to each Mate three pounds a month. ..... And further His Highness hath referred to the ancient Masters and Governors of our Society (i.e. the company of Barber-Surgeons) the pressing of all Surgeons and Surgeon's Mates or servants to Surgeons and Barbers." It is therefore evident that, as the pay was not a sufficient inducement, surgeons were "pressed" or forced, as seamen were forced by press-gangs, to join the service when war called for surgical help.

More than a hundred years later, and consequently after Hunter's experience at Belleisle, the inducements to serve were still not improved, for in 1787, only three years before Hunter's appointment as Surgeon-General, Robert Hamilton wrote: "Each regiment is allowed a Surgeon, as he is termed, and a Surgeon's Mate. Their business is to attend to the diseases of the men at all times whenever it is judged necessary. For this service the surgeon is allowed four shillings a day; the mate three and sixpence. But out of this are levied from them considerable duties; from the surgeon a shilling, and from the mate sixpence a day. This makes their subsistence equal, so that each is limited to a guinea a week, and on this they must subsist as well as they can."

The pay of John Hunter as staff surgeon is uncertain, but was probably ten shillings a day, and he also had another ten shillings as "Deputy-Purveyor." He joined the Army for the Belleisle Expedition chiefly in order to obtain a change of duties and surroundings after illness and overwork in London; when the war came to an end he returned to his studious life, and started practice in Golden-square at the age of 35.

It is evident that one of the chief causes of inefficiency in the medical service in the eighteenth century was the custom of employing ignorant and often uneducated men as "surgeon's mates."

The mate was the assistant of the surgeon and was usually unqualified, except that he might have been a surgeon's apprentice in civil practice. Some few, it is true, were well-educated men who had attended lectures on anatomy, surgery, and medicine, but all of them were only "warrant officers" and did not hold commissions.

So long as there was no war to make demands for an increase of the staff of surgeons the evil was not very great, but in 1793, on the outbreak of war with France, "an increase of the hospital establishments of the Army became necessary, and, the pay of 'hospital' mates being higher, many 'regimental mates' transferred to the hospitals as 'hospital mates.' An increase in the number of surgeons led to the promotion of many regimental mates, and many also purchased commissions." (Colonel Johnstone.)

The result of this was, first, that many of the men who now held commissions as surgeons were very ignorant fellows, and second, that the places of the promoted mates were filled by men of low class, most of whom had no surgical knowledge at all, but were yet in control of the treatment of hundreds of men. For example, we read that on one occasion "five hundred invalids were embarked from Arnheim in barges under the care of a single surgeon's mate without sufficient provisions and without even straw to lie on." (Fortescue: "British Campaigns in Flanders.")

Bad State of Medical Service in 1793–4.

But, not only was the pay and status of the surgeons bad, the administration of all the Army was on a thoroughly unsound footing, for, after Marlborough's time its efficiency, or the reverse, depended on the Minister in power in England for the time being.

Military history shows that in the campaigns of 1793 and 1794, just when Hunter's work was published, mismanagement and incapacity in the Government had reduced the whole Army to a state of inefficiency and chaos. Thus, Fortescue writes: "The men were imperfectly disciplined, there were no efficient company officers to look after them; no efficient colonels to look after the company officers; no generals to look after the colonels. ..... No effort was made to clothe recruits, who received a linen jacket and trousers, and many were sent on active service in this dress, without waistcoat, drawers, or stockings." (Fortescue, p. 372.) So bad indeed was the supply of army clothing that great-coats were supplied to some regiments by public subscription. The medical service was such as might be expected when the Army, as a whole, was in this condition, and the state of affairs in July, 1794, is described as follows:—

"But the very worst department of all was that of the hospitals wherein the abuses were so terrible that men hardly liked to speak of them. ..... Some kind of a medical staff was improvised out of drunken apothecaries, broken-down practitioners, and rogues of every description, who were provided under some cheap contract; the charges of respectable members of the profession being deemed exorbitant. ..... 'The dreadful mismanagement of the hospitals is beyond description,' wrote General Craig." (Fortescue.)

It will be noticed that this explanation of the rotten state of the medical service was the unwillingness to spend the money necessary for efficiency, and it requires but little study to realise that gross maladministration and peculation of public money were at the root of most of the troubles in all departments of the Army.

Hunter had been appointed in 1790 to be "Inspector-General of Hospitals and Surgeon General in the Army," but he had died on Oct. 16th, 1793, before the breakdown I have mentioned above. As far as I can ascertain, however, his authority did not in any case extend overseas, and, even had it done so, it is quite certain that he would have been powerless to check abuses which originated in maladministration of Ministers in England, and which resulted ultimately in the armies being so starved of supplies of food and clothing that by November, 1794, there were 11,000 sick out of a total force of infantry of 21,000. It is not too much to say that the collapse and defeat of the British forces in Flanders at that time were brought about more by the want of ordinary care for our troops than by anything else. Even the best medical service is powerless when no provision is made for the ordinary necessaries of life, especially if the combatant officers are as ignorant and inefficient as were very many of them at that time.

A Modern Contrast.

In the present war the splendid health of our armies has not been due solely to the work of the medical service during the war, good though that has been. It has also been due to the instruction of the combatant officers before the war in the value of good hygiene and of the proper care of the men in camps and billets. This, in its turn, has been supported by the abundance and excellence of the supplies of food and clothing which have everywhere followed our troops throughout the campaign in a never-failing stream; while the supervision and supply of drinking-water, the precautions taken to destroy flies and to burn refuse, to inspect and cleanse billets, &c., have all contributed to save life and to avoid sickness.

The result is that the invaliding rate from preventable disease in the fourth and fifth years of the present war has been no more than the same rate in times of peace, and while the war in Flanders at the end of Hunter's life failed largely because of the immense loss to the forces caused by the sickness of the whole Army, it is not too much to say that in the present war much of the efficiency and fighting power of the British troops has resulted from the good health and the consequent high spirits of all ranks. The records of many sieges have proved that sick and half-starved men may hold on to a defensive position and fight well to the last, but it is only robust, vigorous, and thoroughly healthy troops who are capable of enduring the immense strain of pressing home for many weeks in rapidly succeeding battles such a strenuous and victorious offensive as that initiated by the British Army on the ever-memorable day of August 8th, 1918, and consummated in the armistice of Nov. 11th.

HUNTER'S WRITINGS ON GUNSHOT WOUNDS.

It is very difficult properly to appreciate the value of Hunter's writings on gunshot wounds at the time of their publication, but their interest for surgeons can be better estimated if it is remembered that no one had previously written much about these injuries for many years, and that Hunter's great reputation and his position as Surgeon-General compelled the attention of everyone connected with the medical service.

Superstition and ignorance had united to create the belief that there was something about a gunshot wound which rendered it quite unlike any other, and, to use Hunter's own words, "they have been considered apart from other wounds and are now become almost a distinct branch of surgery." He then proceeds to point out that they are essentially "contused wounds," although they have certain peculiarities due to the passage of foreign bodies into the tissues, and that they should be treated on ordinary commonsense principles.

Hunter was the first to clearly appreciate and teach that in the gunshot wounds of his time "a part of the solids surrounding a wound is deadened ..... and is afterwards thrown off as a slough, which prevents such wounds healing by the first intention." He pointed out how the separation of a slough might open a part of a large artery or a portion of intestine.

He realised that "the greater the velocity of the bullet the cleaner it wounds the (soft) parts."

He noticed that "when the velocity is small the direction of the wound produced by the ball will, in common, not be so straight, therefore its direction not so readily ascertained, arising from the easy turn of the ball."

He taught the much-needed lesson of not interfering with any wound unless a definite object was to be gained. He wrote: "We must see plainly something to be done for the relief of the patient by this opening (of the wound) which cannot be procured without it," and he was able by his influence and reputation to alter the practice of the routine opening up of every bullet wound, regardless of any indication for so doing, which was a universal custom before he challenged it.

His descriptions of peritonitis following intestinal injury and of infection of a hæmothorax caused by a wound of the lung are masterpieces of observation and perception, and his opinion that a hæmothorax might be advantageously treated by emptying the blood from the pleura coincides with the practice of the present day.

HUNTER'S VIEWS ON PRIMARY AND SECONDARY AMPUTATIONS.

It is evident that Hunter felt, as all surgeons have felt, the difficulty of deciding the best time for the removal of a hopelessly smashed limb, and it seems also clear that his experience of "primary" amputations, with the primitive methods of that day, had been bad.

The consequence was that he advocated delay, more especially when the lower extremity was concerned, but it is not clear what period of delay he had in his mind, for he does not indicate at all how many days he would wait. Here is his view:—

"In general, surgeons have not endeavoured to delay it (amputation) till the patient had been housed and put in the way of cure; and therefore it has been a common practice to operate on the field of battle; nothing can be more improper than this practice, for the following reasons. In such a situation it is almost impossible for a surgeon in many instances to make himself sufficiently master of the case, so as to perform so capital an operation with propriety; and it admits of dispute whether, at any time and at any place, amputation should be performed before the first inflammation is over."

Again: "The only thing that can be said in favour of amputation on the field of battle is that the patient may be moved with more ease without a limb than with a shattered one, ... but it may be observed that there will be little occasion to amputate an upper extremity in the field, because there will be less danger in moving such a patient than if the injury had happened to the lower."

There is no doubt that modern surgeons would not agree that obviously necessary amputations should be delayed for several days, and would advocate their performance as soon as the condition of the patient permitted it. But we must remember that in the year 1760 methods of averting hæmorrhage were very primitive, and that severe loss of blood from an operation which followed soon after the primary hæmorrhage due to the injury might well prove fatal, when delay might have lessened the risk.

GUTHRIE'S ADVOCACY OF PRIMARY AMPUTATION.

In 1815 Guthrie published his book on "Gunshot Wounds of the Extremities Requiring the Different Operations of Amputation," and in it he strongly defended primary amputations and opposed with excellent reason the advice given by Hunter. In this he was certainly in the right, and largely because his opinions were founded on a very extensive experience.

Guthrie at the time I allude to was very young in years, for he was only aged sixteen when he joined the Army in 1801 as assistant surgeon. But the time he had spent in the Peninsular War had been a time of constant fighting, and his talents and skill had quickly earned for him a most responsible position in which he had opportunity for much operative surgery.

I therefore desire to direct your attention to the results which he quotes in support of his own views and in opposition to the advice of Hunter. These relate to (A) primary operations on the field of battle (Toulouse); (B) secondary operations in general hospitals (Toulouse).

	(A) Primary amputations.			(B) Secondary amputations.		
	Total.	Died.	Cured.	Total.	Died.	Cured.
Upper extremities ...	7	1	6	15	3	12
Lower extremities ...	40	8	32	36	18	18
Total	47	9 (19%	38	51	21 (41%)	30

To these figures Guthrie supplies the comment: "The medical duties both in the field on the day of action and in the Hospitals afterwards until the final evacuation of Toulouse were more immediately under my observation and control"; so that it is clear that the figures given represent the final results.

But I do not quote these figures merely for the purpose of showing that the practice of primary amputation was to be preferred to that of secondary, but also to draw attention to the fact that these results of primary amputation must be considered very good, and to ask the question how it was that these patients did so well.

No doubt one very important reason was that at the end of the Peninsular War surgeons had become very expert in the act of removing a limb, for the amputation rate was exceedingly high, and in the battle of Toulouse itself no less than 93 patients lost a limb out of a total of 1407 wounded, or about 1 in every 15.

It must also be remembered that in many patients the injury which justified amputation in those days was not necessarily so severe as to induce a serious condition of shock, for many amputations were done not so much because of the serious condition of the limb at the moment as on account of the complications which could by experience be foretold. Thus, it was well known that in few patients with fracture of the femur could life or a useful limb be saved, and all wounds of the knee-joint complicated by any fracture were also treated by amputation, conditions for which in the present war we should very rarely advise removal of the limb unless there were serious complications.

But although Hunter's advice to wait for amputation until "the first inflammation is over" was not accepted by his successors, it must be noted that we do not ourselves advocate operation "on the battlefield," nor should we in these days be satisfied as easily as Guthrie, who says:—

"The military surgeon should never be taught to expect any convenience; his field-pannier for a seat for the patient, and a dry piece of ground to spread his dressings and instruments upon are all that are required."

We should further note that Hunter himself advocates removal of a limb at once "if the parts are very much torn so that the limb only hangs by a small connexion," and also that "it may be necessary to perform the operation to get at blood-vessels which may be bleeding too freely."

PRIMARY AMPUTATIONS AT THE PRESENT DAY.

Let me ask you to consider the treatment of gunshot wounds by primary amputation at the present day.

In the first place, many surgeons besides myself have always advised that a completely shattered limb should be removed as soon as the patient can be brought into a field ambulance, unless his condition is such as to prohibit any operative treatment at all. There is no doubt in the minds of careful observers that the keeping of such a limb, even for a short time, is most prejudicial to the patient, probably to some extent because of the absorption of toxins from the smashed muscles, and that as soon as he is rid of it his condition improves.

In proportion as shock is severe and the limb is nearly severed, it is not, however, advisable to do at once a formal amputation above the

seat of injury—especially if the lower extremity be the one concerned—and it is enough at the moment to sever the remaining tissues with knife or scissors, to tie bleeding vessels, apply a dressing, and then to leave the patient to improve before more is done. This severance of the remaining tissues of the limb requires no anæsthetic save a small dose of morphia and the tight application of a tourniquet, for the latter causes so much numbness that no pain is felt from the procedure I have advocated.

It is especially inadvisable to give chloroform or ether if the conditions require the early evacuation of the patient or if a formal operation under an anæsthetic is shortly to be performed. A second administration of these anæsthetics after an interval of only a few hours has proved most harmful in such patients, and should certainly be avoided.

In other cases where the limb is not completely shattered but yet requires removal, it is generally best to splint it carefully and to send the patient to a casualty clearing station, where he can be put to rest in a warm place and be carefully tended till he has recovered from the effects of the journey and has taken plenty of fluid and has slept. After that there is generally no object in further delay, but in many cases it is necessary, in order to get the patient into an "operable" condition, to administer fluid of some kind either per rectum or by intravenous injection. For the latter purpose we have used with good results a 6 per cent. solution of gum arabic, or, if the loss of blood has been excessive, a pint or more of blood has been transfused, and by these means many lives have been saved.

I have already mentioned the inadvisability of two administrations of ether or chloroform, but where a patient is suffering from severe shock or hæmorrhage even a single anæsthetisation by either of these is very definitely dangerous, and may be quite enough to turn the scale in the wrong direction and prevent recovery.

I believe that in such cases as we are considering it is safer to give no anæsthetic than to give chloroform, and ether is not much better. Far the best method of anæsthesia is the administration of gas and oxygen, and amputations may often be performed when the patient is under the influence of this anæsthetic which could not be done at all without it.

I am indeed inclined to believe that the success in primary amputations of Guthrie and his contemporaries would have been diminished if chloroform could have been given, and I am quite convinced that it should never be employed in such cases.

During the present war we have gradually but steadily so improved our methods of treatment of men with severe shock caused by smashed limbs that we are now able to save patients by amputation of an extremity who would previously have died without operation being possible. On the other hand, we are also able to save very many limbs which would four years ago have been lost. Whereas in our longest established general hospitals about one patient in every 100 wounded men lost a limb in 1914–15, in the same hospitals during the past year amputations have been performed in only about one patient out of every 200.

GAS GANGRENE.

It is a curious fact that Hunter has practically nothing to say of the complications of gunshot wounds, and it is evident that those he saw left but little impression on him. In the present war the frequency of "gas gangrene" has greatly impressed all surgeons, for in civil practice it was practically unknown, and its frequency came as a rude shock to the aseptically trained operator. But if it be asked, "Did gas gangrene occur as a common complication in Hunter's time, and has it been of frequent occurrence in other wars?" I believe that the reply should be in the negative. My own belief is that in no previous wars has gas gangrene ever played so predominant a part as it has in France and Belgium in the early part of this war.

It must be admitted by all that acute gas gangrene is so striking and terrible a malady that it could not possibly have been overlooked if it were at all frequent. Yet I find no description of it in Hunter's work or in those of any of the early writers on war surgery, and although the latter wrote chapters on the subject of gangrene or "mortification," it is evident that they refer to that which is due to vascular lesions or else to an extensive smashing of a limb followed by sepsis.

It is certain that the so-called "hospital gangrene," so fully described by Larrey as "pourriture des hôpitaux," was not gas gangrene, but a spreading septic ulceration which characteristically did not occur soon after injury, but rather in suppurating wounds, and was of the same nature as the "sloughing phagedæna," which not so many years ago was rife in wards for venereal diseases. And Larrey's contemporary in the French Army, Baron Percy, and Guthrie in the British Army, give no description of a disease occurring in the Peninsular War resembling the gas gangrene of the present day.

There is no mention of its occurrence, and still less of its prevalence, in the Crimean War; while Professor W. W. Keen, who himself served in the American War, writes to-day: "Personally I never saw a single case in the Civil War."

Various French writers described cases of gas gangrene in the Franco-German War of 1870, but, although there is no doubt of its occurrence at that time, there is no evidence that it was generally prevalent.

Coming to still more recent times, gas gangrene never occurred in the South African campaign, and was of quite rare occurrence in the Russo-Japanese War. Finally, I have personally inquired of many surgeons who took part in the Balkan War of 1913, and there is no doubt in their minds that it was very seldom seen.

In the present war gas gangrene has been practically unknown in Mesopotamia, Egypt, or Palestine, and I am informed that it did not occur in the early days of fighting at Gallipoli, although it was occasionally seen later on. At the Salonika front it has been of comparatively rare occurrence, and it has not been nearly so prevalent on the Italian front as in Flanders.

Incidence of Gas Gangrene.

It is well known that at the beginning of the war in France and Belgium the medical services of all the combatants were quite inadequate to deal thoroughly with the immense number of wounded. Most of the latter at the time of the retreat from Mons and in the fighting on the Aisne had to be evacuated to base hospitals before any complete surgical treatment could be carried out. There were practically no "hospital trains" in those days, and the railway services were so crowded with supplies for the armies that traffic of all kinds was excessively slow. The result was that the wounded, placed when opportunity offered in the luggage-vans of empty returning supply-trains, were frequently several days in reaching their destination after being wounded, and great numbers of them were suffering from extensive gas gangrene on arrival, or else had succumbed to it en route.

During the ensuing "First Battle of Ypres" and the succeeding winter it was still an exceedingly frequent complication, but diminished very much during the next summer, when there was also much less fighting, until the battle of Loos in September, and during this battle it was much increased. In 1916 it was less evident until the heavy casualties of the battle of the Somme filled the hospitals with wounded, many of whom developed gangrene; and during the fighting at Arras and Vimy in the cold and stormy spring of 1917 there were still very many cases, in spite of good surgical work at the front. From that time, now nearly two years ago, gas gangrene has rapidly diminished, and during the year 1918 it has been comparatively little in evidence, at any rate in its worst forms, as will be gathered from the following samples of figures from the base hospitals during heavy fighting.

A. Of 5270 consecutive patients from the Messines battle (in June, 1917) there were only 22 cases of gas gangrene.
B. Of 3690 consecutive wounded at the beginning of the Passchendaele fight (in August, 1917) there were only 16 cases of gas gangrene.
C. Of 3200 at a later stage of the same fight 7 cases.
D. Of 2900 patients in July, 1918, there were 11 cases of gas gangrene.
E. Of 10,000 wounded in August, 1918, there were 27 cases.

It will therefore be seen that out of a total of about 25,000 patients at base hospitals, only 84 patients had serious, or "massive," gas gangrene; an incidence of about 1 case in 300 wounded men, and many of these had multiple wounds or badly smashed limbs.

Causes of Lessened Incidence of Gas Gangrene.

If the question is now asked as to what causes account for the great diminution of this grave affection in 1917–18, it must first of all be noted that:—

(*a*) The ascertained cause of gas gangrene is the presence of certain well-recognised anaerobic organisms which are, present in highly dunged and cultivated soil, and are absent from that of the South African veld or the sun-dried sand of Egypt and Palestine, while they are present in small numbers and are apparently less virulent in Eastern Europe.

(*b*) The organisms concerned have little power over healthy tissues, but they are resistant to the strongest antiseptics and grow freely in damaged muscle, especially if into the latter be thrust some foreign body rich with the organisms, such as a piece of shell or muddy clothing. Some of the very worst cases are those where the "missile" is composed only of the mud itself which is driven with immense force by a shell or bomb exploding in muddy ground, and frequently causes a great number of small wounds, in some of which the mud may be driven right through the deep fascia or actually into the muscle sheath.

(*c*) Lowered vitality of the patient by exposure to wet and cold, and exhaustion from want of food, and over exertion, are predisposing causes, as is also to a very serious extent the deprivation of blood-supply, owing to injury of a large vessel. It is also clear that wet and cold weather and mud favour gas gangrene much more than heat and dust.

Such are the now well-recognised causes of gas gangrene and the conditions in which it may be expected to occur, and very much of the reduction now noticed is due to the abandonment of strong antiseptics, and to the timely excision and surgical cleansing of the wound and the removal of all foreign bodies. It may also be claimed that the thorough arrangements for the treatment of the chilled and exhausted man by warmth, rest, and intravenous injections have saved many lives through restoring the vitality and resisting powers of the patients.

Influence of Changed Condition of Soil.

But, when all this is allowed for, it is evident that there must have been other causes at work to account for so great a diminution of this danger to the wounded man, and these

must be sought in a lessened virulence of the infecting agent itself which has occurred during the past four years and has, in its turn, resulted from altered conditions of the soil in which the organisms are bred. That this is true is supported by the following facts:—

In the Somme battle of 1916, in spite of many thousand operations performed at the front, there were very numerous cases of bad gas gangrene both in the casualty clearing stations and at the base hospitals, although they were much less frequent than in 1914. In the Somme fighting over the very same ground, during the retreat in March, 1918, when the casualty clearing stations had to be abandoned, operations could not be done at the front. Patients had consequently to be sent to the base in trains of all kinds as well as in ambulance trains, and were often not thoroughly treated by surgical operation till after a delay of one or two days. Yet there were far fewer cases of gas gangrene in 1918 than in 1916, and in 20,000 patients at one base between March 23rd and 29th the incidence was only 1 per cent.

But, whereas in the earlier years of the war much of the land was covered with rich crops and had recently been very freely manured, at the present time in the battle areas the face of the earth is absolutely changed. A great stretch of country, comprising many hundreds of square miles, has been practically destroyed, as far as its development by mankind is concerned. What was once a prosperous country-side with highly cultivated arable land is now little more than a desert, pitted with shell holes, scarred by innumerable trenches and gunpits, the chalk subsoil scattered over the surface of the ground, the skeletons of smashed and shredded trees alone marking the sites of destroyed villages, and all appearance of cultivation wiped out. The whole land has gone back to "prairie conditions" and looks like an extensive and barren moor, although in summer time it is partly redeemed by the luxuriant growth of wild flowers.

In such a country which has been exposed to sun, wind, and rain, for three or four years, uncultivated, unmanured, uncropped, deserted by man and animals, it is probable that the anaerobic organisms have diminished both in numbers and virulence.

But, be the causes what they may, it was an immense relief to the surgeon in 1917–18 to find that this, the greatest surgical epidemic of wound infection which has ever been recorded, was neither so prevalent nor so dangerous as formerly, and that the wounded man was no longer so greatly exposed to grave risk of life or limb, even though his wound itself were slight and involved no vital part.

TRANSPORT AND HOSPITALS AT THE FRONT.

I now turn to the arrangements for transporting and treating wounded men.

Evolution of the Field Ambulance.

The history of the early hospitals in the British Army has been carefully investigated by the late Colonel William Johnston, and from his researches it appears that in Hunter's day the patients at the front were treated in "regimental hospitals" or else in "garrison hospitals." "Marching" hospitals or "flying" hospitals were established by William III., and first saw active service in his campaign in Ireland. In addition to medical personnel they had "nurses, cars for the transport of the sick, drivers, and men-servants." Unfortunately these precursors of our present field ambulances came to an end with the completion of Marlborough's campaigns in 1711, and were not revived until the nineteenth century, so that they did not exist in Hunter's time.

Ranby wrote in 1781 as follows: "I would wish to be indulged in a scheme which might, I think, be put into execution with all the facility imaginable. It is this, when the army is forming for an engagement let the surgeons with their respective mates of the three or four regiments that are posted next to each other collect themselves into a body and take their station in the rear according to the command of the general. Here let the wounded be put under their immediate care and management. By this means they will be enabled mutually to assist each other and to perform their duty both with care, exactness, and dispatch."

It is thus evident both that the need of some arrangement for mutual aid was felt and also that it did not exist in Hunter's time.

In those days the wounded soldiers were taken to the base in country wagons or in the regimental forage carts, and it was left to Larrey to create in 1792 the first "ambulance cars," which were reserved for the sole use of the sick and wounded and which were named by him "Ambulances Volantes." He figures and describes them as "a kind of carriage hung on springs, uniting great strength and solidity." They were of two kinds—the light with two wheels and the heavy with four wheels. Each ambulance "cadre" or "division" was provided with 12 light and four heavy cars and comprised a personnel of 340 officers and men. Larrey states that after the battle of Eylau in 1807 the wounded were successfully transported by the *ambulances volantes* to châteaux "at a distance of not less than 55 leagues."

This "division" may fairly be claimed as the first efficient field ambulance in the history of war. Since this period horsed ambulances of various types have been employed as part of the transport of our own field ambulances, but it was not until the present war that "motor ambulances" were added to the transport of the field ambulances and that "motor ambulance convoys" were provided to supplement the latter. I think it is hardly realised how much in present warfare the whole system of the treatment of the wounded is based upon and pivots on the "motor ambulances."

Influence of Increased Range of Projectiles.

In Hunter's time the range of the musket was two or three hundred yards and that of a cannon less than a mile; beyond this distance surgeons could work in safety. It was consequently not at all difficult to carry the wounded man to some place where a barn, or shed, or a stone wall offered sufficient protection, for there were no shells.

At the present day there is no such thing as absolute safety anywhere near a battle front.

Apart from bombs and guns of exceptional range, immense numbers of shells are fired to a distance of from 6 to 8 miles. The consequence is that, while surgeons supply skilled help, at much risk, at the regimental aid post or the advanced dressing station, within a very short distance from the line, the patients have to be removed quickly to considerable distances, and the casualty clearing stations have to be placed some eight miles or more in the rear. The consequence is that horsed vehicles could not possibly make a sufficient number of journeys to bring in the wounded from heavy fighting within a reasonable time, and in addition the numbers of the wounded are so great that there has been nothing in any previous war to compare with the task of the ambulances of the present day.

It must, therefore, be understood that all wounded men have now to be taken a considerable distance before reaching a place where they can be both immediately treated by the surgeons and also retained and cared for after operation. It is during this long motor-car journey from the battle-front that the patient runs risks of those further injuries which it is the object of the surgeon to minimise as much as possible.

Care of Wounded during Removal.

One of these risks is exposure to cold.

This is a most serious danger to men suffering from shock or hæmorrhage. To avoid this hot-water bottles are freely used, stretchers are covered with one folded blanket, and the patient is warmly wrapped in others. The car is also usually provided with a pipe heated by a supply of hot air from the exhaust pipe of the engine.

The other most important risk is that of injury to the soft tissues by the fragments of broken bones which are jolted by the movements of the car.

The extent of this will largely depend on the roughness of the road and its pitting by shells, but to a still greater extent it will depend on the care with which suitable splints are applied. It is the custom in the British Army to splint all fractures as far forward as possible, and in any case at the field ambulance, with the result that, with the apparatus now provided, fractures are so immobilised that the minimum of risk is incurred and the minimum of pain is caused by the journey. It is not too much to say that very many patients who, without a good splint, would arrive in a state of collapse and die, or else would lose their limbs, now get down to the casualty clearing station with discomfort rather than with suffering.

It has been remarked that the modern offensive methods which characterise this war are largely dependent on the invention and development of the petrol engine, and that the tractors of great guns, the war in the air, and the war under the sea are all dependent on this device. It is at least some satisfaction to know that it is to the same device that tens of thousands of wounded men owe, not only a more comfortable transport than the soldiers of previous wars, but also the saving of lives and limbs in numbers beyond measure.

THE CASUALTY CLEARING STATION.

In Hunter's day the only hospitals near the front seem to have been those called "regimental," and they were apparently established in any buildings which seemed suitable for the purpose. I have not found any records of their equipment, the number of their personnel, or their accommodation. It is probable that they were very primitive.

In our own Army at the present day the demand for hospitals at the front has resulted in a new unit which has been created by the conditions peculiar to this war. I allude to the casualty clearing stations, and these have their counterparts in the armies of all the other European combatants.

Great Development in Work of Casualty Clearing Station.

This unit had not been in action before the present war. At the commencement of hostilities it consisted of a staff of six medical officers with a commanding officer and quartermaster and 80 orderlies; some of the latter were well-trained nurses. It provided accommodation for 200 patients on stretchers, but was not supplied with beds. Its surgical equipment consisted merely of sufficient instruments and appliances for the performance of a few urgent operations, and it was provided with one operating table and a few very primitive wooden splints. Its function, as the name implies, was "to clear" the field ambulances and to pass on by train the sick and wounded for further treatment at the base hospitals. Each unit was intended to be attached to a division and was supplied with horsed transport.

Since those days the long line of trenches and the comparative immobility of the armies until recently have provided the opportunity for very great developments, with the result that the casualty clearing stations of the present day are very efficient and well-equipped advanced hospitals, with theatres for six or more tables, and suitable in every way for the performance of any operation. They have been expanded to provide, according to circumstances, for from 600 to 1200 patients, of whom 200 have beds and the remainder stretchers.

A great deal might be said of the work of the casualty clearing stations which would be out of place here, but it may be pointed out that an advanced hospital of this type is an absolute necessity in the warfare of the present day. Very little experience was required to show that it was quite impossible to carry out the pre-war idea of doing all the surgery (with few exceptions) at the general hospitals at the base. Men with such injuries as wounds of the chest and abdomen, severe fractures, and wounds of large vessels, could not be safely conveyed long distances by trains, while patients suffering from dangerous shock or the effects of profuse hæmorrhage demanded immediate treatment as near the front as possible. But, over and above all these, the necessity which arose for early operation in order to prevent the development and spread of gas gangrene or dangerous sepsis in even slight wounds alone justified the expansion of the casualty clearing stations.

The Surgery Carried out at Casualty Clearing Stations.

It will thus be seen that the object in view in their development was to secure efficient treatment as early as possible. The ideal of surgical treatment would be the supply of enough surgeons and enough hospitals close to the front to allow of all operations being always performed there with the least possible delay. This ideal has, indeed, been often realised in the present war, when, during quiet periods, the wounded were comparatively few, but it has proved impossible to supply enough surgeons and enough accommodation to realise the ideal when the casualties of a great battle number many thousands a day, and when the duration of the battle is measured not by days but by weeks or months. But, although it has not been always possible to do that which is ideal, the custom of reinforcing busy hospitals with "teams" of extra surgeons, anæsthetists, and assistants has enabled an immense amount of work to be done.

Apart from operations on the abdomen, the chest, and the head, the vast bulk of this work is of a nature which appeals to surgeons and to patients alike, for it is "conservative surgery" in the best sense of the term. In the first place it consists largely in the thorough surgical cleansing of wounds so as to save limbs and lives, and in the second place it supplies the necessary foundation for the early closure of the wounds by suture. In this way large flesh wounds are prevented from suppurating, "compound" fractures are made "simple" fractures, and the patient is saved from a long illness and its debilitating effects. Such treatment diminishes stay in hospital, frees hospital beds, lessens the labour of nurses and surgeons, and, best of all from the point of view of the Army, it enables many patients to recover quickly and to return to their regiments.

I would claim that, apart altogether from considerations of humanity, good front-line surgery very fully compensates an army for the demands it necessarily makes on supply and transport. It more than pays its way both by returning sound combatants to the ranks, and also by saving the country the expense of innumerable pensions on behalf of men whose lives or limbs have been saved.

Value of Front-line Surgery to the Army.

Long before this war the combatant branches of the Army fully realised the importance of the prevention and cure of illness and their effects on the maintenance of armies in the field, but it is only during the present war that the value of good and prompt surgery has been fully appreciated and that the necessary facilities have been supplied whenever the military situation has permitted. Similar facilities will henceforth be expected in all future wars.

It is well known to the medical profession that an immense amount of this front-line surgery has been successfully undertaken, and it is also well known to, and deeply appreciated by, the combatants of all ranks, whose confidence and faith in the Army Medical Service is by far the best possible tribute that could be paid to it. I will not attempt to supply any statistics, but some idea of the magnitude of the surgical work at the front will be gathered if I state that during the three and a half months of the Third Battle of Ypres in 1917 61,500 operations were performed under anæsthetics in the casualty clearing stations of two armies.

Organisation: Adaptation to War of Movement.

It will easily be realised that much forethought and preparation are required to produce these results, for they require not only arduous work by day and night for, perhaps, 12 hours out of 24—a tax on the strongest when continued for weeks on end—but also the harmonious working from the front to the rear of stretcher-bearers, regimental medical officers, field ambulances, ambulance convoys, and ambulance trains, any one of which is liable to interruption by accident or by the acts of the enemy.

The staffing of the casualty clearing stations for the Third Battle of Ypres especially deserves to be recorded, for on this occasion many of the most representative surgeons from the United States, from Canada, Australia, New Zealand, and South Africa were included in the reinforcing surgical "teams," or else were on the staffs of the casualty clearing stations of the armies concerned. Thus, for the first time in history, the surgical skill and talent of all the various sections of the Anglo-Saxon race were brought together on a battlefield, and with the happiest possible results to the wounded men. On this occasion, because of the absence of heavy fighting in other armies, more surgeons were available than at any other period, and no clearing station had less than 24 surgeons and 24 nurses. It was therefore possible to keep eight operating tables in action in every unit, and there is no doubt that almost every wounded man whose condition made it advisable was passed through the operating theatre before being sent by ambulance train to the base.

The war of movement which characterised the closing stages of the campaign called for the development of new methods for meeting the situation thus created. Of the details of these a great deal might be written which would be too lengthy for the present occasion, but this much may be said. The clearing stations were sufficiently reduced in the bulk of their equipment to enable them to be rapidly moved forward, and they were frequently able to take in and treat many hundreds of men within 24 hours of their arrival on a new site, while at no time during the whole campaign was there more work done in resuscitating the badly wounded and in the intravenous administration of blood or of alternative fluids to men who had suffered from severe hæmorrhage.

CONCLUSION.

And now let me recall to your attention a phrase of Hunter's which I read to you at the beginning of this address.

"It (the appointment to the Belleisle Expedition) drew my attention to inflammation in general, and enabled me to make observations which have formed the basis of the present treatise."

The war was to him not merely a sphere for the exercise of his surgical skill, but also an opportunity for observing and studying conditions of which he had hitherto had no experience. What has this war been to the surgeons of the present day? It may truly be said that very many of them, and in all parts of the world, have entered into this work imbued with the spirit of our great master. To them it has not only afforded immense opportunities of helping their fellow countrymen, but has also provided problems for study and for solution.

The spirit has been one of progress and of development and of unwillingness to rest content with conditions that might be bettered or with methods which proved unsuitable. It is not too much to claim that each year of war has seen better surgical measures devised and consequently better results obtained. The sufferings of the wounded have been lessened, the dangers they run have been diminished, and lives and useful limbs have been saved in constantly increasing numbers. Surgeons have not been content merely to guess at possible answers to the never-ending questions suggested by the complications of war. They have devised new methods to meet new conditions and have put them to the test of experience; and when they have failed they have tried and tried again until they have compelled success.

In this great tragedy of war the Royal College of Surgeons of England has played no unimportant part. Hundreds of its Fellows and thousands of its Members have willingly pressed forward for service. Some of them, like our President, have occupied with credit and honour the most prominent and important positions, and others of them, often less prominent no doubt, have not only given their services, but have also given their lives. The position I have had the honour to hold in the Army Medical Service has afforded me very abundant opportunities of appraising the performances of others, and I am full of admiration both for the skill and ability of our surgeons and for the splendid work done by the Royal Army Medical Corps in rescuing the wounded in conditions of unprecedented difficulty and danger, and in organising the hospitals for the subsequent treatment and restoration to health of the British soldier.

THE BURIED SEQUESTRUM: A POST-WAR PROBLEM.

BY JAMES PHILLIPS, F.R.C.S. EDIN.,
MAJOR, R.A.M.C.; OFFICER I/C SURGICAL SECTION, BRADFORD WAR HOSPITAL.

FOR long surgical skill will be required to remedy conditions resulting from gunshot wounds. The class of case dealt with in this paper is certain to call for treatment in hundreds of instances. I have followed the method of treatment described below at the Bradford War Hospital since the spring of 1917.

Causation and Treatment.

1. The condition is associated with the extraordinary multiplicity of comminution which characterises war-wound fractures. The bone is commonly splintered into many fragments; the periosteum is torn and separated from the bone; the spaces between the various fragments and between them and the periosteum become filled with new bone, in the midst of which lie one or more sequestra. It is these buried sequestra which are responsible for the persistent suppuration.

2. In a majority of cases little aid is to be obtained from X ray examination or from the condition or direction of the sinuses, &c., towards diagnosing the character, size, and position of these sequestra.

3. The only treatment likely to be successful consists in baring the bone from overlying soft tissues and freely chiselling through bone until the sequestrum is exposed. This is a severe operation, and, as multiple sequestra are not uncommon, more than one operation may be required.

4. The removal of the necrotic tissue makes it possible to treat bone cases by the Carrel method; the wound can be made surgically clean, and secondary suture successfully practised.

The rôle of the periosteum.—Fig. 1 shows a piece of femur removed in re-amputation after a guillotine amputation in France nine weeks previously. Evidently the periosteum had been separated from the femur in the course of the primary amputation and osteogenesis had resulted in the formation of a large mushroom boss of new bone. Had the

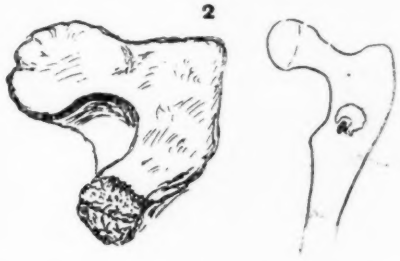
1

Drawing of piece of femur removed in re-amputation of thigh. *a*, Bone protruding, bare of periosteum. *b*, Episteal new bone, surrounded by scar tissue and muscle. *c*, Normal bone.

case been left I have no doubt that the piece of bone (*a*) would have become separated as a ring sequestrum. I am inclined to think that in some similar pathology may be found the explanation of myositis ossificans. This condition comes on after an injury, generally one affecting a muscle attachment to bone. If we imagine that the injury has produced some separation of periosteum from bone, it is not difficult to picture the osteoblasts becoming free to invade the damaged muscle fibres and their subsequent conversion into bone cells.

Fig. 2 shows a mass of new bone removed from a femur of which there was a partial fracture. The missile has penetrated the periosteum just externally to the small trochanter. The man had been treated at another hospital from May, 1917, to February, 1918, and was then sent to his home in Bradford on furlough. The wound broke down, and he was admitted to the Bradford War Hospital. A lump was felt in the left femoral region which the X rays showed to be a bony growth. An inch-long sequestrum was removed from a granulation-lined cavity in the bone; the cowl of new bone figured had been thrown out over the sequestrum. The wound was treated by Carrel's method and secondary suture successfully performed.

2



Piece of bone chiselled from femur; it formed a cowl over a sequestrum.

The same sort of rampant overgrowth of new bone takes place around a badly comminuted (gunshot) fracture. A femur may become two or three times its normal thickness; nor does a radiogram usually show the full extent of the enlargement, since many months are required before the new bone is sufficiently calcified to be opaque to the X rays. It may be that sequestra keeping up a constant discharge are buried an inch or more deep in this mass of new bone. The difficulties in the way of localisation are very considerable.

The diagnosis of buried sequestra.—The persistence of one or more sinuses is, of course, a constant feature where there is chronic osteomyelitis. I have had all my cases X rayed, but the number and size and site of sequestra more often than not cannot thus be diagnosed with any certainty. In one plate (Fig. 3) the sharp end of what is obviously a sequestrum is sticking out; in another (Fig. 4) a less dense area in the shadow indicates a cavity which probably contains a sequestrum. But in a large proportion of cases the findings are negative. (Fig. 5).

Method of Operation.

Whenever a case comes under my care in which either rough bare bone is felt by the probe or a persistent sinus leads to the seat of an old bone injury of the femur, and especially if X-ray examination points to sequestrum formation, I operate in the following way.

An incision long enough to permit of the exposure of the whole of the damaged area of bone is made and carried down to and through the periosteum. All the soft parts, including periosteum, are cleared from the bone with an elevator, bony irregularities are chiselled away, sinuses in the bone are followed up, and an attempt made to find and remove all sequestra. How difficult this may be is illustrated by the following case (the first treated in this manner).

Pte. S. admitted to Bradford War Hospital Sept. 8th, 1916. A month earlier right femur badly smashed by rifle bullet. He was treated on a Thomas's knee splint and firm union with good alignment obtained, but pus kept collecting and bursting through sinuses in both front and back of thigh. I opened up sinuses and used a sharp spoon on several occasions, but suppuration persisted. I showed the case to Sir B. G. A. Moynihan, and on his advice I undertook the method of treatment now described.

On May 7th, 1917, a 10-inch incision was made in front of the thigh, the femur cleared in the whole length of the incision, and irregular new bone freely chiselled away, two sequestra removed, and a fairly smooth-walled shallow cavity left in the femur. The wound was treated by Carrel's method; on May 29th reported sterile. On June 1st it was closed in the method described below; stitches removed on June 25th. On July 3rd "wound dry and firm." A day or two later the apparently soundly healed posterior wound began to discharge. On July 20th it was opened up and further extensive chiselling done; three large sequestra (the smallest nearly 2 inches long) were found, which had been quite unsuspected.

The necessary chiselling of such a femur is an operation which, if undertaken in a man who has been absorbing toxins from a suppurating wound possibly for months, is likely to be associated with a good deal of shock. More than once I have thought it wise to complete this stage of the operation at a later sitting. When every obvious crevice and cranny in the bone has been smoothed away with the chisel the soft parts are stitched *open* by passing one or more mattress sutures of thick iodined silk through the muscles and then through the skin at some distance from the edge of the wound.

The sterilising of the wound is done by Carrel's method. Dakin's solution is instilled every two hours, and at least once in 24 hours a thorough cleansing of the wound is undertaken. The cavity is opened out to the bottom with

3

Sequestrum poking out of hole in a femur (from Case 5).

4

Femur with cavity containing sequestrum. Four long sequestra were removed from this femur.

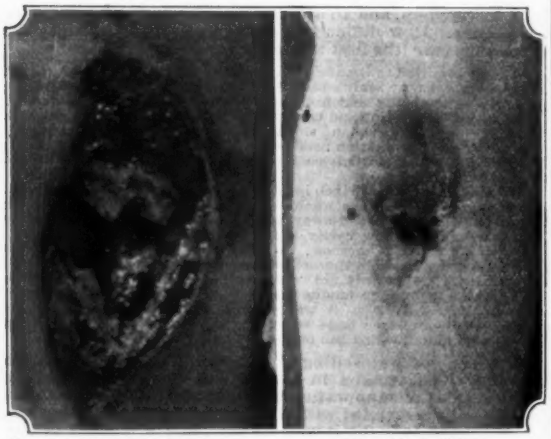
5

Femur radiographed post mortem. A sequestrum 3 inches long could be seen through a fenestrum in the bone, but the radiogram gives no idea of its presence.

dressing forceps and is tightly packed with gauze-and-wool swabs wrung out of Dakin's solution, and these remain in it while the cleansing of the skin is proceeded with (where the cavity is deep it is most important that the swabs be counted). Only by thus packing the wound have I found it possible to prevent the sides of the cavity from growing together. At first the packing is likely to cause pain and the dressing may have to be done under an anæsthetic, but the chief cause of the pain is sepsis and as the wound becomes sterile pain and tenderness disappear. The discharge is examined bacteriologically twice a week and when the "film chart" shows 3 or less organisms per field for two successive examinations the closure of the wound is proceeded with.

The closure of the wound.—The skin is prepared for operation by the nurses as in any ordinary planned operation. On the table a further cleaning up is done. The granulations are thoroughly curetted, the soft parts are raised from the bone until they can be brought together without much, if any, tension. The skin is freely undercut and its edges trimmed. The undercutting is essential if a non-adherent linear scar is to result. The raw surface is swabbed first with methylated spirit and then with bipp. A running catgut stitch brings the deep fascia edges together over the muscles. Thick silk stitches are passed through all the soft tissues from skin to periosteum so as to close the wound, leaving no dead cavity. A continuous catgut stitch is used to secure accurate apposition of the skin edges. An absorbent dressing is applied and left in position for 14 days; it is then renewed, but the sutures are left *in situ* for another week. The result is generally a linear scar; usually a little discharge takes place from one or two stitch holes, but at the end of a month there is, as a rule, a firmly healed cicatrix.

6 7



Case 8 three weeks after admission. After skin grafting.

Illustrative Cases.

CASE 1.—Gunner S., wounded by shrapnel March 21st, 1918. Admitted Bradford War Hospital April 17th. Three vertical wounds, one behind the other, about upper part of right thigh. X ray report: "The great trochanter has been comminuted and some fragments of bone driven backwards into the gluteal muscles." On May 6th the middle wound was opened up and comminuted bone and surrounding granulations chiselled away. Wound stitched open. By June 7th the "film report" was satisfactory and the wound was sutured and practically primary union took place.

8 9

Radiograms of Case 8 at periods corresponding to Figs. 6 and 7.

CASE 5.—Pte. P., wounded July 9th, 1916. Lay in shell hole four days. Sent straight to England, arriving at Bradford War Hospital on July 15th. Badly comminuted fracture of lower third of right femur, much sepsis, effusion into knee-joint. This was before the days of bipp and Carrel-Dakin treatment. Patient was extremely ill, abscesses formed in various parts of the limb, and when union had taken place and only one or two sinuses remained he was sent to country to convalesce. Readmitted on June 30th, 1917. A week later the wound was opened up and several central sequestra, of which the largest

measured 2½ by ¾ inches, were removed. He was averse from further operation. Wound, treated by Carrel's method, appeared to close from the bottom slowly but satisfactorily. On Dec. 19th it was dry and he was marked for invaliding board. But on Dec. 27th pain, swelling, and fever appeared and two days later an abscess burst. On Jan. 14th, 1918, the wound was laid open by a 10-inch incision and some newly formed bone chiselled away. On Feb. 18th the wound was clean and it was sutured. On March 14th the wound was dry; he was allowed up; on March 23rd he proceeded home.

This case shows that secondary suture is required in addition to removal of necrosis and cleansing of the wound. The wound was kept clean and appeared to heal over, but a dead space remained, and in this materials collected which became infected. When once more the wound was clean and had been surgically closed healing took place at once, and less than five weeks after the closing operation the patient was discharged with his wound soundly healed.

A fracture of the shaft of the humerus can often be most successfully treated in the manner described, but of course free incisions require to be carefully planned so as to avoid the nerves.

Different treatment is required where the fractured bone is subcutaneous or poorly covered with soft tissues—as, for example, the condyles of the femur, the shin, the lower half of the radius or ulna.

CASE 8.—Driver B. H.E. shell wound of right leg on Oct. 4th, 1917. F.B. smashed through upper end of right tibia and was removed from calf. At C.C.S. infected muscle and bits of comminuted bone removed. Admitted to Bradford War Hospital on Oct. 15th with large wounds back and front of upper half of right leg, the latter showing badly smashed tibia and fibula. Carrel's tubes inserted and leg placed on Thomas's splint. The posterior wound healed up fairly quickly; on Dec. 3rd firm union of the fibula and partial union of the tibia were noted; the extension apparatus was removed. On Jan. 4th, 1918, a clean granulating surface 3½ by 1 in. over the front of the head of the tibia was skin-grafted. No dressing of any kind was applied; the leg was simply covered over by a cage. By Jan. 18th the graft wound had healed and the man was getting about on crutches. What one has noticed in other cases was observed here—viz., that new bone apparently continued to be formed beneath the healed grafts. At first the scar was markedly concave, but after some weeks the cavity was very definitely less deep.

There is a steady stream of men being sent to their homes near Bradford, either as transfers or as pensioners, in whom sinuses leading down to bare bone are present many months, sometimes years, after the wound was inflicted. For such cases radical methods such as the one I have described are the only ones likely to lead to healing of what must otherwise remain in many instances permanently discharging wounds. My sincere thanks are due to Miss Mitchell, the radiographer, and to Mr. Bernal Riley, the honorary photographer to the Bradford War Hospital, for the great trouble they have taken with the illustrations.

"PROPELLER" FRACTURE.

BY LIEUTENANT-COLONEL A. L. JOHNSON, C.A.M.C.,
SURGEON SPECIALIST, MILITARY HOSPITAL, SHORNCLIFFE.

FRACTURE of both bones of the forearm by direct violence, commonly caused by "back fire" when cranking a motor, was widely observed during the earlier years of the automobile. It has become less common since the introduction of self-starting appliances. That an analogous type of fracture is common in aeroplane operation is suggested by four cases of supracondylar fracture of the right humerus, all caused by aeroplane propellers, which have been treated recently in the Surgical Division of the Military Hospital, Shorncliffe. As this type of injury is likely to be common both during and after the war, it is thought worth while to bring this limited but instructive series of cases to the attention of the profession.

FIG. 1.—Posterior angulation on straight Thomas's splint.

FIG. 2.—Anterior angulation on right-angled Thomas's splint.

Nature of Injury and Treatment.

The history of the injury, the clinical condition, the conduct of the cases, and the variation from the classical treatment of this type of fracture are all significant.

The history of the injury is as follows: To start a non-self-starting aeroplane an air mechanic grasps a blade of the propeller and then turns it. At the same time the pilot opens the throttle in order to flood the cylinders with gas. At the word "contact" from the mechanic the pilot throws the switch into contact with the magneto, causing a spark, which ignites the gas and starts the engine. If the "team work" is faulty the mechanic is liable to be struck down by the propeller before he can escape. This was the history in the four cases forming the basis of this note.

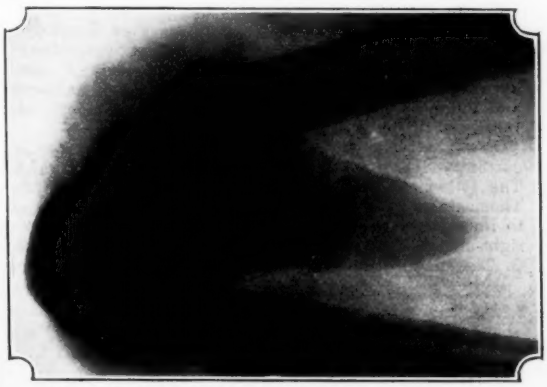


FIG. 3.—Lack of good alignment with arm in acute flexion.

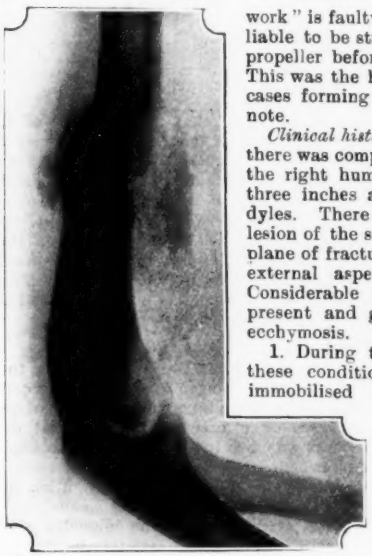


FIG. 4.—Good anatomical result with Middledorf splint two months after injury.

Clinical history.—In all cases there was compound fracture of the right humerus from one to three inches above the epicondyles. There was a transverse lesion of the soft tissues at the plane of fracture, on the antero-external aspect of the arm. Considerable hæmorrhage was present and great œdema and ecchymosis.

1. During the subsidence of these conditions the arm was immobilised in a straight Thomas's splint, and the local condition was treated with dressings of liquor plumbi evaporans t.i.d. applied on lint. In this splint the radiogram showed a posterior angulation, and particularly a posterior displacement of the lower end of the upper fragment. (See Fig. 1.)

2. A right-angled Thomas's splint was next applied, with the forearm in supination and with extension to the lower end of the humerus. The fracture was reduced by manipulation, but the appliance did not serve to retain the fragments in alignment and apposition, there being anterior angulation. (See Fig. 2.)

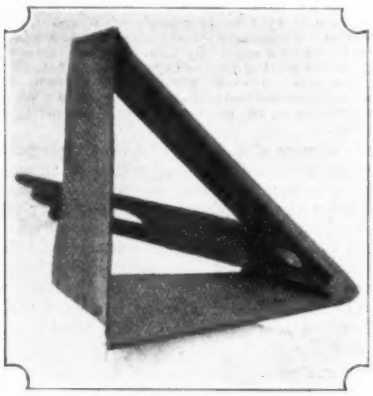


FIG. 5.—The Middledorf triangular splint.

3. The classical text-book treatment of acute flexion was next tried. It had not been possible previously because of the dressing of the wound, which would have necessitated extension of the forearm at each dressing and consequent disturbance of the fracture. In any case, good alignment was not obtained with the elbow in acute flexion. (See Fig. 3.)

4. A Middledorf triangular splint (see Figs. 5 and 6) was next applied, with anterior and posterior coaptation of Gooch's splinting. This appliance admitted of passive movement daily of the forearm and gave a good anatomical and functional result. (See Fig. 4, taken two months after receipt of injury.)

Remarks.—The treatment of these four cases ran concurrently and the experience in all of them was uniform. The following conclusions may be stated: 1. A straight Thomas's splint is useful during the first 10 days of treatment to immobilise the arm and to facilitate treatment. 2. A right-angled Thomas's splint with extension is not suitable. 3. The classical treatment of putting the arm up in acute flexion is not suitable. 4. A Middledorf triangular splint admits of correct alignment of the fractured humerus, a satisfactory anatomical and functional result. It allows passive movement of the elbow-joint during the period of treatment without disturbance at the seat of fracture.

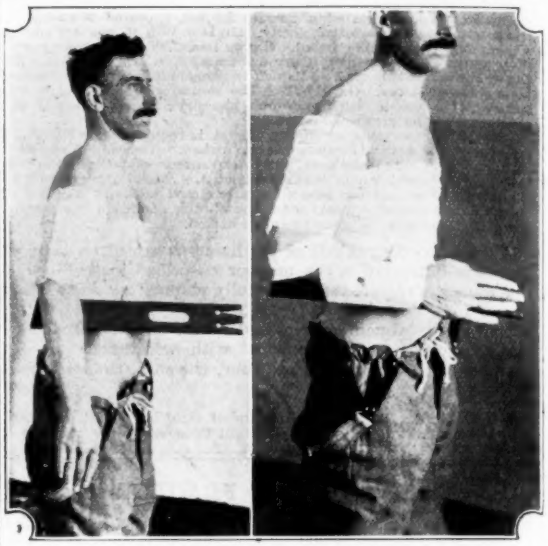


FIG. 6.—Middledorf splint in position.

I am indebted for the accompanying photographs to Colonel E. J. Williams, D.S.O., C.A.M.C., and for the radiograms to Lt.-Col. George Musson, C.A.M.C. The clinical notes were taken by Captain W. H Secord, M.C., C.A.M.C., and Captain C. S. Strong, C.A.M.C. The Middledorf triangular splint may be had from the Kensington War Supply Depôt, 13, Kensington-square, London, S.W.

AN INVESTIGATION INTO

THE BLOOD-SUPPLY OF MUSCLES,

WITH SPECIAL REFERENCE TO WAR SURGERY.

BY J. CAMPBELL, M.D. LIVERP.,
CAPTAIN, R.A.M.C. (S.R.);
AND
C. M. PENNEFATHER, M.B., B.S., M.R.C.S., L.R.C.P.,
CAPTAIN, R.A.M.C. (T.C.).

IT appeared to one of us (J. C.) that a knowledge of the distribution and arrangement of the arterial supply in individual muscles would be of use in the treatment of war wounds: (1) with regard to the amount of tissue that should be removed in primary excision of wounds; and (2) with a view to elucidating the cause, prevention, treatment, and method of spread of gas gangrene. The information thus gained is useful and important. Indeed, one of us has found that it has been the means of saving quite a number of lives, of avoiding a still larger number of amputations, and of preventing recurrence of gas gangrene after operation.

Arterial Distribution in Muscle.

The scope of the present paper is limited chiefly to a consideration of arterial distribution in muscle. Later communications will deal with the clinical aspect, &c., of gas gangrene. For purposes of comparison the arterial distribution in other organs was also investigated. Photographs illustrating the vascular arrangement in muscle are seen in the figures.* The radiological side of the investigation was carried out entirely by Captain Pennefather.

If we compare the skiagrams of the muscles with specimens and radiograms illustrating arterial distribution in brain, heart, and small gut we see at once that the arrangement of the arterial tree is identical in all cases. We also see that in none of them are the vessels strictly terminal—i.e., without any anastomotic communications. In all cases anastomoses are present, *but only as very fine ones.* (Fig. 3.) Large loops resembling those in the mesentery or subcutaneous tissues are rare. Hence if we are justified in calling the arteries in brain, heart, and small gut "end-arteries," we are equally justified in applying the term to those inside muscle.

If now we examine collectively the skiagrams of the muscles, we readily see that we can divide the muscles into three main classes:—

1. Those with a blood-supply derived from many different sources and in which potential anastomoses between the different sources are quite numerous. (Figs. 1 and 5.)

2. Those with a blood-supply derived from only two or three different sources, but in which the potential anastomoses between these sources are, relatively speaking, few in number. (Figs. 2 and 3.)

3. Those with a blood-supply derived, for all practical purposes, from only one source, and in which, granted that this main source of supply is cut off, almost the *entire* muscle becomes ischæmic, and therefore liable to almost complete destruction, owing to the practically complete absence of potential collateral channels. (Figs. 4 and 5.)

These classes are respectively illustrated by:—

I. The deltoid and pectoralis major. (Fig. 1.) To this class also belong pectoralis minor, the scapular muscles, biceps brachialis, brachialis anticus, triceps adductor magnus, gluteus medius, gluteus minimus.†

II. Gluteus maximus (Fig. 2), rectus femoris, hamstring muscles (semi-membranosus, semi-tendinosus (Fig. 3), biceps cruris), sartorius.

III. Crureus (Fig. 5), gracilis (Fig. 4), inner head of the gastrocnemius, outer head of the gastrocnemius.

Relative Liability to Gas Gangrene.

If now we look at these three groups of muscles we see that they have a varying liability to gas gangrene (with the exception of those mentioned in the foot-note as belonging to Class 1). Thus Group I. is formed of muscles that are but

* These photographs were made by first of all injecting the main vessel of the region with a light bismuth salt and then radiographing the excised muscles.

† In this class we must also place soleus, vastus internus, vastus externus (Fig. 5), the deep muscles of the calf, the anterior leg muscles. These muscles are not included above for certain special reasons that will be referred to later on in another communication.

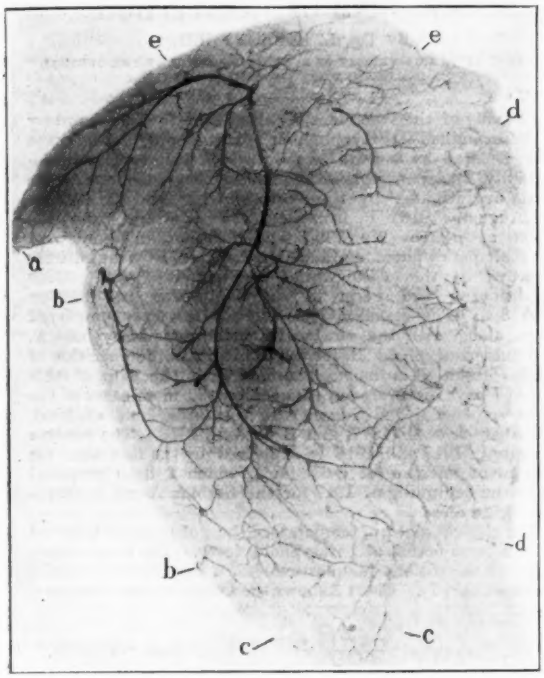


FIG. 1.—Arterial supply of pectoralis major (Group I.). *a*, Twigs from humeral branch of thoracic axis artery; *b b*, From long thoracic artery; *c c*, From intercostal arteries; *d d*, Branches from internal mammary; *e e*, A number of branches from thoracic axis artery.

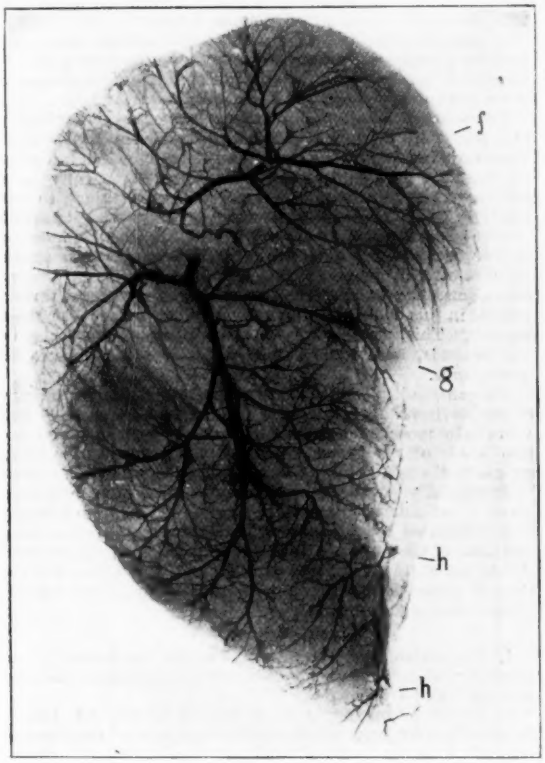


FIG. 2.—Arterial supply of gluteus maximus (Group II.). *f*, Superficial division of gluteal artery; *g*, Sciatic artery; *h h*, Twigs from external circumflex artery.

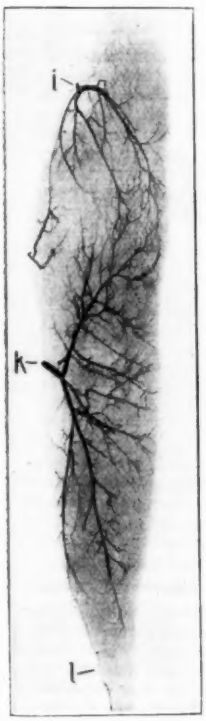


FIG. 3.—Arterial supply of semitendinosus (Group II.); *i*, Twigs from sciatic artery; *k*, Branch from perforating artery; *l*, Twig from anastomotica magna artery.

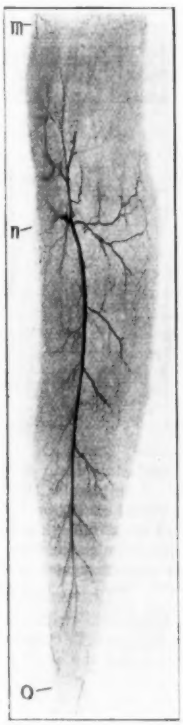


FIG. 4.—Arterial supply of gracilis (Group III); *m*, Twigs from obturator; *n*, Branch from internal circumflex artery; *o*, Twig from anastomotica magna artery.

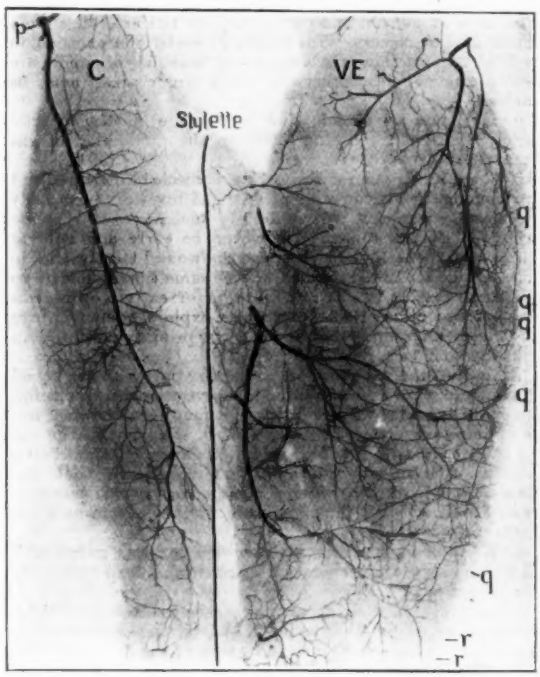


FIG. 5.—Arterial supply to crureus (C) and vastus externus (V E). The vastus externus has been turned outwards, as on a hinge, on its origin from the linea aspera. The two muscles are approximately separated by the stylette. Crureus, Group III; Vastus Externus, Group I. *p*, Branch from external circumflex artery; *q q q q q*, Twigs from the four perforating arteries; *r r*, Twigs from popliteal after piercing biceps m.

rarely the subject of gas gangrene, though localised gas infection is common. Group II. is formed of long, strap-like muscles (with the exception of the gluteus maximus) that are particularly prone to gas gangrene. Group III. is formed of muscles that are still more prone to gas gangrene when the subject of any severe laceration.

From these observations, then, it would seem highly probable that vascular distribution in muscle has a most important bearing on the origin and spread of gas infection in muscle. This subject is to be referred to fully in a further communication. In consequence of injury to the arterial supply the mass of muscle to which the damaged artery is distributed in Classes 2 and 3 either completely dies or becomes devitalised to a marked extent owing to the slow re-establishment of the circulation. When infecting organisms, particularly the bacilli of gas gangrene, invade muscle in this condition they find a nidus suitable for their growth. This, we think, is what happens in many cases of war wounds, with the result that gas gangrene makes its appearance.

We can readily see, then, the importance in war surgery of conserving the blood-supply to all muscles generally and to certain muscles in particular (gracilis, crureus, and the two heads of the gastrocnemius). The necessity for doing so was well realised in pre-antiseptic days when operations were specially planned along those routes which interfered least, if at all, with arterial supply. This is particularly well illustrated by the classical posterior route for excising the head of the femur. Here the incision is so placed as to divide the gluteus maximus muscle approximately along the line of separation between the portions supplied by the gluteal and sciatic arteries.

Conclusions.

1. The arteries in muscle are as much "end-arteries" as those in gut or brain; but in none of these cases are they strictly "end-arteries."

2. If the blood-supply to a muscle is cut off locally (especially over large areas) death of masses of muscle may take place owing to the difficulty in re-establishment of the collateral blood-supply.

3. During operations the blood-supply to muscles and inside muscles should be conserved in the most jealous fashion.

4. When excising wounds of muscles, a knowledge of the internal arrangement and distribution of the arterial supply is essential to success. Take care to make the excision in such a way that the main vessels and branches of supply are not interfered with, otherwise much larger areas must be excised.

5. Ischæmia of muscle due to damage of the arterial supply is a most important factor in the production of gas gangrene.

6. Should a large artery supplying a muscle be damaged and the wound already the subject of "gas invasion," cut away the damaged muscle till definitely bleeding surfaces are exposed. Should the case, however, be early and not yet (clinically) "gas infected," excise the wound locally and do not sacrifice too much tissue. At the same time take care to relieve all tension locally so as to allow of early re-establishment of the circulation. (This may explain the advantage of "delayed primary suture" over "primary suture" in gunshot wounds.)

7. In the case of muscles possessing only a single vessel of supply (e.g., crureus, gracilis), owing to the risk of cutting the main artery of supply inside the muscle it is wiser not to attempt excision of the track, but simply to clean out the track very carefully with strips of gauze. Before being satisfied with this course, however, make sure that the blood-supply is intact by seeing whether or no free bleeding occurs from a small incision made in the muscle at some distance from the wound.

8. When dealing with muscles prone to "gas gangrene" take every step after operation to raise and keep raised the arterial tension.

9. In "resuscitation cases" take care to slacken all tight bandages so as to allow as much blood as possible to reach any ischæmic masses of muscle by way of the fine collateral channels that exist.

We wish to acknowledge our thanks to Colonel C. H. S. Frankau, D.S.O., A.M.S., consulting surgeon to the 5th Army, for the opportunity he most readily gave us for carrying out this work.

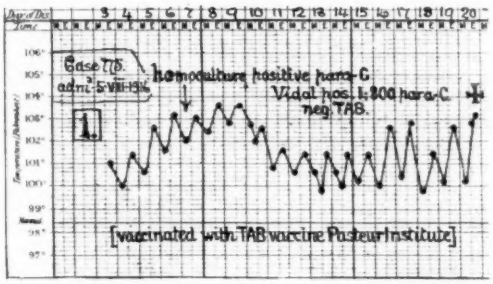
A NEW GERM OF PARATYPHOID.[1]

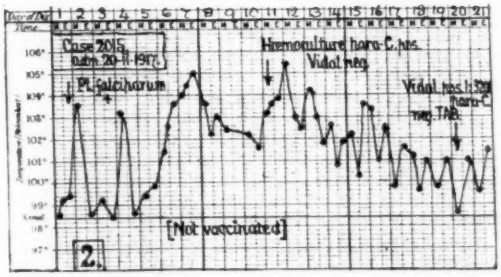
BY DR. L. HIRSCHFELD,

DOZENT OF THE UNIVERSITY OF ZURICH; DIRECTOR OF THE CENTRAL LABORATORY OF THE SERBIAN ARMY.

IN many of the specimens of blood sent to the laboratory to be examined for typhoid or paratyphoid, germs have been isolated by culture in bile which behaved, bacteriologically, like paratyphoid bacillus B, but were not in the least agglutinable by the corresponding specific serum. In August, 1916, I isolated such a strain from the blood of patient No. 775. The reaction of Widal with Eberth, paratyphoid A, and paratyphoid B was entirely negative in this case, whilst the serum of the patient agglutinated the germ in question, even in dilution 1 in 800. The serum of this patient has been employed since, along with the sera anti-Eberth, anti-paratyphoid A, and anti-paratyphoid B, for the serological differentiation of strains isolated in hæmoculture. With the help of this serum I have discovered in hæmoculture 11 more cases of the same serological individuality in the latter half of 1916, 5 further cases in 1917, and 2 cases in 1918. The relative scarcity in 1917 and 1918 is explained by the fact that the polyvalent vaccine (of Castellani), which I have prepared since the beginning of 1917 for the Serbian Army, contains this strain also.

The clinical picture, temperature, &c., of patients infected by this germ is that of paratyphoid fever. The temperature chart of the patient in question shows the classical febrile course (Chart 1). Chart 2 shows the febrile course of another





patient suffering from tropical malaria and typical paratyphoid. I emphasise the fact that the two patients did not react to Widal except with the germ in question, and therefore it was not a case of an infection superimposed on typhoid or paratyphoid, but solely an infection provoked by this germ. We have also observed cases less severe and less typical.

Characteristics of the Organism.

From a bacteriological point of view there is no difference between the germ in question and the bacillus paratyphoid B. We have proved the absence of gas and of acidity in lactose, the production of acid and gas in dextrose and mannite, the acidity in dulcite with the production of gas retarded, acidity and production of gas in lævulose, and after the first production of acid further typical alkalinity in litmus milk.

[1] A paper read before the Inter-Allied Medical Society in Salonika on Dec. 10th, 1918.

Broth with neutral red becomes fluorescent. It darkens the medium with subacetate of lead. It does not produce indol.

The bacilli are endowed with typical movements and are Gram-negative. They are not agglutinated either by the agglutinating sera coming from the Pasteur Institute of Paris, the Lister Institute of London, the Greek Laboratory of Salonika, or by those which I brought with me from Switzerland, although all these sera possess agglutinating qualities in a high degree for paratyphoid B. On the other hand, the sera of the patients possess considerable agglutinating power towards this germ. The serum of a patient agglutinated with a dilution of 1 in 3000, though it did not in the least agglutinate the bacillus of Eberth, paratyphoid A, or paratyphoid B. The serum of rabbits immunised by the germ in question is absolutely specific for this strain. The serum that I employ in my laboratory agglutinates this strain up to 1 in 2000, while it does not agglutinate Eberth, paratyphoid A or paratyphoid B at all.

We may therefore consider this germ a serological variety of paratyphoid B provoking, clinically, paratyphoid fever. This bacillus can be very virulent. Besides finding the bacillus in patient 775, who died of the disease, I have isolated the same germ post mortem from the heart of a patient who succumbed to paratyphoid. This variety is more frequent in the Serbian Army than paratyphoid B. I give the monthly statistics from my laboratory:—

—	1916.								1917.																1918.								1916.		1917.		1918.
	M-y.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec	Jan.	Feb.	March.	April.	May	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.	%	Total.	%	Total.
No. of hæmoculture ...	77	110	99	73	60	8	23	12	8	23	8	27	16	4	1	26	13	16	–	–	–	3	7	–	2	7	12	8	4	10	12	–	462	–	142	–	65
No. of positives	17	36	39	11	7	1	7	2	1	1	1	1	–	–	–	1	2	1	–	–	–	–	1	–	1	–	2	–	–	2	1	–	120	–	8	–	7
T. Eberth	3	13	19	1	2	–	2	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	40	34·5	1	12·5	2
Para. A	11	18	14	5	2	1	2	2	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	55	43·0	1	12·5	1
Para. B	1	5	3	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	9	7·7	1	12·5	2
Para. C	1	–	1	5	2	–	3	–	1	1	–	–	–	–	–	–	2	1	–	–	–	–	–	–	1	–	–	–	–	–	1	–	12	10·3	5	62·5	2
Not defined	1	–	2	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	4·0	–	–	–
Of posit. ? Vaccinated ...	?	?	?	5(4c)	2(1c)			1	–	–	–	–	–	–	–	–	1c	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Of posit. ? Not vaccinated	?	?	?	6	5	1	6	9	1	1	1	1	–	–	–	1	1	1	–	–	–	–	1	–	1	–	2	–	–	2	1	–	–	–	–	–	–
	I.					II.			III.												IV.																

I.—Inoculated with French vaccines (T., para A and B). II., III., and IV.—Inoculated with Serbian vaccines (T., para. A, B, C, and cholera).

Further researches must decide whether in our case it is a question of a bacillus with new serological qualities or whether a comparison with atypical germs of paratyphoid B isolated in the epidemics of alimentary intoxication, epidemic jaundice, inagglutinable strains isolated during paratyphoids, &c., will show the identity of my bacillus with strains isolated elsewhere. This variety, distinguished by the same pathogenic properties as the paratyphoid bacilli, and provoking clinically a paratyphoid fever, it would be suitable to call the bacillus "paratyphoid C," and to separate it from the many serological varieties of the paratyphoid bacillus B, which only provoke alimentary intoxication.

A point of great diagnostic importance in this atypical bacillus of paratyphoid B is its serological constancy. For two years I have studied this question in respect to the germ, and having continually practised growing it I have made the following conclusions:—

In the Serbian Army we have to deal with three different serological varieties:—1. The pure paratyphoid bacillus C. The quality of not agglutinating except with serum paratyphoid C remains constant. 2. The pure paratyphoid B bacillus. The greater part of the bacilli of this category retain their specific agglutinability. I have seen those, however, which in addition to their agglutinability by anti-paratyphoid B serum acquire, at least for a time, the property of reacting with anti-paratyphoid C serum. One strain (No. 228) even lost its agglutinability with anti-paratyphoid B serum, and would only agglutinate in the last two examinations with anti-paratyphoid C serum. 3. The bacilli which were agglutinated from the beginning by the sera anti-paratyphoid B and anti-paratyphoid C, and which even after being carefully isolated remained agglutinated by the two sera, and in consequence possess these two agglutinable qualities, can be called "bacillus paratyphoid B, C" (5 cases). These bacilli have lost in the course of the two years their agglutinability with anti-paratyphoid B serum. It was not a question in these cases of an absolute loss of agglutinability, as these varieties preserved the property of reacting to serum anti-paratyphoid C to the same degree.

Our experiences partly confirm the observations of authors on the mutability of the species paratyphoid B. We have seen that a bacillus with the biochemical properties of the paratyphoid bacillus B can change its serological specific properties. It seems to us interesting that it is only some of the serological characteristics of the paratyphoid bacillus B which are capable of changing, while the agglutinability of other germs, above all paratyphoid C, remains constant.

The Question of Preventive Vaccination.

It is two years ago since I first discovered this germ in the blood of one of our Serbian patients. In August, 1916, I communicated the fact to the French Service de Santé. This atypical strain not having been notified by the laboratories of the Allies, this question did not appear to be of practical importance to any other Army than the Serbian.

Lately, with a Bulgarian patient of the Hospital of Petit Karabaroun I have been able to isolate the same germs by hæmoculture. The patient succumbed to the disease. The culture from the fæces and urine of this patient gave a pure and abundant growth of paratyphoid C. Lately we have seen the Widal reaction positive up to 1 in 400 with only paratyphoid C in the case of a Greek patient in the town; therefore this germ exists among the Bulgars, and probably throughout the Balkans. In the last case Professor Vallardi, chief of the Italian Central Laboratory, discovered by hæmoculture a paratyphoid C bacillus which agglutinated with my anti-paratyphoid C serum which I gave him. I gave a culture of paratyphoid C to Colonel L. S. Dudgeon, R.A.M.C., who told me he had confirmed the serological peculiarities of my bacillus.

The question now arises whether the Allied armies occupying Bulgaria and Turkey are vaccinated against this species. I am not informed whether the vaccine employed in the East contains the local atypical bacilli also. As far as French vaccines are concerned I believe it is not so, for the following reasons: (1) The agglutinating sera of the Pasteur Institute, samples of which we received two months ago through the Medical Reserve, do not agglutinate paratyphoid C; (2) the Serbian Army was vaccinated in the month of May, 1916, by vaccines of the Pasteur Institute which contained Eberth, paratyphoid B, and paratyphoid A. In 1916 I saw eight cases of positive hæmoculture, although the patients had been vaccinated. Of these eight cases five were infected by paratyphoid C, one fatally.

Thus we see that the greater part of positive hæmocultures amongst vaccinated patients show paratyphoid C, in spite of the fact that generally paratyphoid C was in the minority. Since the end of 1916 the Serbian Army has been vaccinated with the vaccine prepared by me, which contains paratyphoid C in addition to Eberth, paratyphoid A and paratyphoid B. As a result we can announce the disappearance of this strain. All the positive hæmocultures since this time have been isolated from non-vaccinated subjects. Only one case of a vaccinated person showed very slight paratyphoid (fever lasting only three days). The efficiency of the vaccinations and the reactions, both local and general, has not been modified by the presence of these other bacilli in the vaccine. In view of the great practical importance of the question, I considered it my duty to publish these facts. I can put cultures of the paratyphoid C bacillus and its corresponding agglutinating serum at the disposal of any laboratories interested in the question.

Clinical Notes:

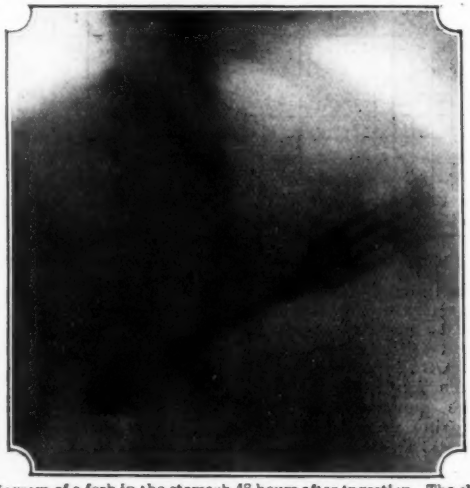
MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A DINNER FORK IN THE STOMACH AND DUODENUM.

BY KENNETH A. LEES, F.R.C.S. ENG.,
SURGICAL REGISTRAR, ST. MARY'S HOSPITAL, PADDINGTON.

IN the following strange case of swallowing a fork the patient, a domestic servant, aged 25, had only recently arrived from the West of Ireland. It turned out to be a small dinner fork of the plated variety (6½ inches long, handle 4 inches).

The patient gave the following history. Having lost all her upper teeth, and having had no plate fitted, she was unable to masticate her food thoroughly. On Christmas Day she swallowed a portion of a giblet which had some difficulty in passing down the gullet. Later she vomited, during which the undigested meat "stuck in her throat" and caused difficulty in breathing. Thereupon she took a small dinner fork from the kitchen table and passed it down the throat, handle first. She dislodged the foreign body and removed the fork. The piece of meat, however, again stuck in the gullet lower down. On attempting the same manœuvre a second time she passed the



Radiogram of a fork in the stomach 48 hours after ingestion. The slight blurring at each end is due to active peristalsis.

handle of the fork "a long way down." To her dismay the constrictor muscles gripped the fork, and she gradually lost her hold upon the prongs and it disappeared.

The patient applied to the hospital for relief; her story was not readily believed, but it was decided to take an X ray picture. Some little delay occurred owing to the Christmas holiday, but on the 27th the photo was ready and showed a dinner fork in the stomach with the handle towards the pyloric end and the prongs towards the cardia. (See radiogram.)

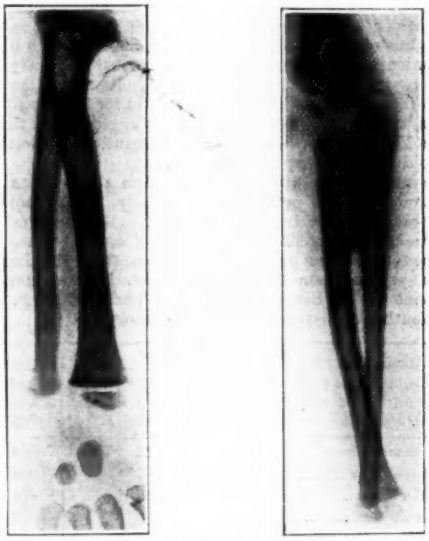
I was called to see her on the 27th at 6 o'clock. She was complaining of pain in the epigastrium, which was much worse when she ate anything, owing to peristalsis being excited. Nothing could be felt abnormal in the epigastrium. She was advised to have an operation for the removal of the fork. At 10.30 P.M. I did a gastrotomy through a 2-inch abdominal incision just to the right of the mid-line. There was no difficulty in identifying the foreign body. The shoulder of the fork was now lying against the pylorus, the prongs being in the stomach and the handle in the duodenum. It was removed prongs first through a ¾-inch incision in the anterior wall of the stomach. There were a few black patches on it, possibly from the action of the stomach acid. The subsequent suture of the organ was carried out in the ordinary way, the whole operation taking under 20 minutes. The patient made a successful recovery.

The accompanying radiogram was taken in the X ray department. St. Mary's Hospital. I am indebted to Mr. J. Ernest Lane for permission to publish the case.

(?) CONGENITAL SYNOSTOSIS.

BY ELIZABETH SLOAN CHESSER, M.B., CH.B. GLASG.

A CHILD of two years was brought to me on account of his inability to supinate the right forearm. The movements of pronation and semi-supination were accomplished without



Pronation. Semi-supination.

Radiographs by Dr. Tindal Atkinson.

difficulty. When the child was offered a coin he flexed the elbow-joint and turned the hand backwards to receive the coin in the palm of the hand. Dr. Tindal Atkinson X rayed the case for me and the condition was found to be congenital fusion of radius and ulna at the upper third. No history of injury could be obtained.

Harley-street, W.

A CASE OF AN UNUSUAL CONTRACTURE OF THE PALMAR FASCIA.

BY G. DE SWIETOCHOWSKI, M.R.C.S., M.D.,
CIVIL SURGEON, 4TH LONDON GENERAL HOSPITAL, R.A.M.C. (T.)

I HAVE failed to find any reference to a case similar to the one described below in the largest libraries in London. The interest of the case is further increased by the diversity of opinions pronounced upon it.

The patient, 2nd Lieutenant, aged 21, was admitted to hospital in August, 1917. Some time previously a shell had burst close by and he was buried. A fragment hit his head (small scar over right side of occiput); slight cutaneous injuries on right side. A fortnight afterwards the knuckles of both hands swelled, and were slightly tender for 3-4 weeks; and when this subsided he noticed his hands to be deflected; later occasional pain in hands on exertion.

It was found that when extended all fingers of both hands deviated towards the ulnar side; there was loss of flexor power. The ulnar deflection was very much less obvious when the fists were clenched, the deviation increasing *pari passu* with the extension. Extension was limited at the metacarpo-phalangeal joints only; the inter-phalangeal joints were hyperextended. There was no loss of tactile sensation, and apparently no wasting of muscles of hands. On the contrary, the tips of the fingers looked fleshy and plump, and there were belly-like enlargements of soft tissues around the lower part of the digits, especially in middle and ring fingers. Some wasting of face, also loss of flesh generally. The gait was normal; no deformity of toes. No other joints affected. The radiograms of both hands were normal. Family history negative.

On passive movement only it was not possible to extend the fingers and also to undo the ulnar deviation. The ulnar band of the palmar fascia to each finger was seen to stand out like a fine cord. This could be demonstrated by

pulling the fingers towards the radial side, all together or separately. The condition was distinctly bilateral, being more marked in the right hand. Complete correction was not possible even under anæsthesia, during which the dragging on the palmar fascia was more marked.

In spite of the application of splints and vigorous treatment by massage and electricity, no change, except perhaps for the worse, was noticed for over three months.

The essential question was whether the case was organic or functional.

In favour of functional origin were the circumstances leading up to it; no history of a definite injury to the hands; loss of memory by patient once, soon after admission. Finally, the unusual and symmetrical deformity of hands

FIG. 1.—Condition of hands on admission August, 1917. (Maximum extension.) Note marked ulnar deflection.

had led several surgeons to support its functional nature. On the other hand, there was a complete absence of the usual concomitants of functional disorders, such as sensory disturbances, wasting of muscles (except in the face), and it was evident that the voluntary efforts were genuine. The symmetrical disposition is known in cases of hallux valgus, hammer-toe, and camptodactylia has been described amongst organic disorders. Yet there was no hypothermia nor acrocyanosis to indicate trophic disturbances.

The sole disorder known to be associated with the palmar fascia resulting in a contracture of the fingers was first described by Baron Dupuytren. This, however, results in a more or less complete flexion of the digits, mostly of the ring finger, without lateral deflection. Why the process of shortening should have in our case chosen just the ulnar fascicles and be symmetrical is difficult to answer. Perhaps the slight arthritic affection determined the course to a certain extent; for the appearance at the height of the

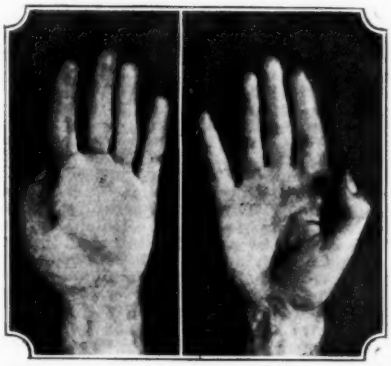


FIG. 2.—Condition of hands in July, 1918. (Maximum extension.) Note absence of ulnar deflection. Two crucial scars in the left and three in the right palm can be seen in relation to and above the lower palmar crease.

contracture was not unlike the deformity met with in advanced arthritis deformans. The interdigital folds (webs) were very marked.

Whatever the origin, the deformity must have resulted from a progressive fibrosis of the ulnar portions of the palmar fascia. The finer anatomical studies of the fascia reveal its intimate relations with the skin of the palm, with which it is connected by perpendicular fibres of great firmness.

Operation was resorted to in November, 1917.

Under general anæsthesia I put the affected portion of the palmar fascia of the left hand on the stretch by reducing the ulnar deflection. A fine scalpel was introduced, first parallel to the fine prominent cord on the ulnar aspect and then at right angles to the original incision, severing the strings. At once the fingers could be easily straightened out and the deflection undone. The bleeding was (comparatively) not inconsiderable, despite care to avoid vessels and nerves. Dressing was applied and a specially constructed splint firmly tied on. Massage was resumed directly the incisions were lightly united. The result was very good. After a few months I attacked the right hand. Both hands can now be used freely, without even a suggestion of ulnar deflection. The splint is still worn at night on the right hand. The grip is steadily improving and there is not the slightest sign of relapse. It took exactly 12 months to cure the case.

This case reminds one strongly of the type of reflex nervous disorders described by Babinski and Froment, though I could not find anything resembling it amongst their pictures. Also, according to them such a contracture should be easily undone in deep anæsthesia. In conclusion, I wish to express my thanks to Lieutenant-Colonel Sir Nestor Tirard, Commanding Officer of the 4th London General Hospital, for his permission to publish the case. I am also much indebted to Captain E. B. Clayton for his untiring efforts in the massage department, and to Miss Berry for the execution of an ingenious splint.

St. John's Wood, N.W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

A MEETING of this section was held on Feb. 5th, Mr. W. T. HOLMES SPICER, the President, being in the chair.

Retinal Degeneration.—Ivory Exostosis of Orbit.

Mr. A. C. HUDSON exhibited a case of Retinal Degeneration following Intraocular Foreign Body. The ophthalmoscopic picture was that of folds in the internal limiting membrane of the retina, probably resulting from contusion of the eye. There were double contour reflex lines radiating from the macular region and having certain peculiarities, one of them being that they passed in front of certain of the retinal vessels and another that they were faintly stippled. He regarded the condition as pathological: there appeared to have been œdema of the whole retina and optic disc. Similar appearances have been seen by the exhibitor in a case of retinitis pigmentosa, resulting, in that patient, from traction on the retina. The lines were analogous to those seen in some posterior capsules after cataract extraction.—Mr. J. H. FISHER thought the history and appearance suggested that the lines were caused by some new formation, probably in the fundus oculi.—Mr. A. W. ORMOND considered that the amount of swelling was much greater in the upper than in the lower part of the disc and that it was pathological.

Mr. W. LANG and Colonel DONALD ARMOUR exhibited a youth from whom an Ivory Exostosis of the Orbit had been removed by Colonel Armour through the cranium. The patient attended at the Royal London Ophthalmic Hospital, where the members of the staff agreed it was a case for a general surgeon. Colonel Armour did the operation of removal. His problem was to remove the growth completely without doing damage to the cranial or orbital contents, and to leave as little facial disfigurement as possible. The skiagram led to his decision to use an osteoplastic flap turned over the frontal region, with its base at the supra-orbital margin, turning down bone and scalp together. That displayed the cranial portion of the tumour, which was found to be indenting the under surface of the frontal lobe. By pushing the dura and brain gently back over the summit of the tumour, he was able to see the whole extent of its cranial portion. Removal was effected in the main by means of hammer and chisel, the small portion of the orbital roof being attacked with cutting forceps. The recovery was practically uninterrupted and complete; there was very little external to indicate that an operation had been carried out. The growth must, he said, have originated in the frontal sinus, judging by the fact that the lower portion of the tumour was covered with mucous

membrane. Colonel Armour had in mind during the operation the possibility of the frontal sinus being involved, bearing in view the question of subsequent sepsis and the interference with respiratory movements, but at the operation there were no signs of that. On the day following the operation, however, and during the two or three succeeding days, there was an escape of blood from the nostril, which seemed to show some involvement of that sinus. It must, however, have been aseptic, as there was no further trouble.—Colonel Armour was congratulated on his success.

Exhibition of Other Cases and Drawings.

Mr. J. F. CUNNINGHAM showed a case of Cartilaginous Tumour of the Roof of the Orbit, and Colonel ARMOUR advised removal.

Mr. ELMORE BREWERTON exhibited a patient with Angioma of the Retina. He regarded it as a form of cavernous angioma. The blood-vessels did not appear to be diseased; the disease seemed to be in an oval swelling in the periphery. The distension of the veins seemed to be purely mechanical. The small branches arising from the main artery were normal in size and general appearance. This was the patient's only eye, and there was reason to fear that the vein would at some time begin to leak; it already showed slight exudation at one point. There was evidently some congenital fault below. His other eye had been removed at the age of six years, as it was not only blind but painful.

Mr. ORMOND described a similar case.

Dr. W. WALLACE showed, by means of the epidiascope, a series of remarkable colour drawings showing Fundus Changes resulting from Severe War Injuries. He offered his collection to the profession.—He was warmly congratulated on them, and Colonel HERBERT PARSONS suggested they should constitute the nucleus of an ophthalmic atlas, which should be a permanent record of ophthalmological work done during the war.

Leber's Atrophy: Changes in Sella Turcica.—Sympathetic Ophthalmitis.

Dr. JAMES TAYLOR read a short paper on Changes in the Sella Turcica in Association with Leber's Atrophy. The speaker's purpose was to support, by means of this case, the contentions of Mr. Herbert Fisher, in his paper some months ago, that the symptoms of Leber's atrophy were associated with definite changes, seen skiagraphically, in the sella turcica. Skiagrams in this case showed departures from the normal in that structure, especially in the posterior and anterior parts of the glenoid fossa.—The PRESIDENT regarded the contribution as a distinct advance. It would be a comfort to know the origin of Leber's atrophy; it was scarcely likely that changes in the sella turcica represented the only abnormality. Ogilvie's series of observations some years ago on the deaths of large numbers of infants in families afflicted with Leber's disease seemed to point the direction in which inquiry should be made.—Mr. FISHER reminded the meeting of his paper in which he suggested that Leber's optic atrophy was due to implication of visual pathways by the pituitary body when it was undergoing excessive physiological changes in association with sexual development or decline. He would welcome every confirmation of that view. He had not seen material alterations in the bony outline of the sella turcica in every case of Leber's atrophy, but in one striking case, that of a woman aged 37 who reached the climacteric prematurely, a definite change was perceptible there.

Mr. R FOSTER MOORE read a paper on a case of Sympathetic Ophthalmitis with Fundus Changes. He said that sympathetic ophthalmitis had been of rare occurrence during the war, therefore every such case was worth recording. In the present instance the fundus changes developed during the progress of the disease, and were visible throughout. The Wassermann test was negative, but five doses of neosalvarsan were given. It did not seem to have any influence on the disease. These cases showed a tendency to get well of themselves. The blood count was normal, and that was usually so in this disease, according to his experience.—Mr. FRANK JULER, who made the drawing of the case, confirmed the history and appearances described. When the case was seen last October the vitreous opacity was very marked indeed, so that the spots of choroiditis could not be clearly defined. A few weeks ago, when he next saw the case, the vitreous opacity had almost entirely cleared up, and the keratitis punctata had quite disappeared. He asked whether the neosalvarsan injection seemed to play any part in the recovery from relapses.—Mr. MOORE replied that "606" did not seem to have any influence upon the course of the disease. The special Committee which the Ophthalmological Society appointed to investigate this condition years ago stated at the end of their report that mercurial inunctions had no decidedly bad effect on the sympathetic ophthalmitis.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A clinical meeting of this society was held at the West London Hospital on Feb. 7th, Lieutenant-Colonel E. M. Wilson, the President, being in the chair.—Dr. Reginald Morton exhibited a series of radiograms illustrating a short paper on the Most Common Site of Malignant Stricture of the Œsophagus. The author stated that during the previous nine years he had examined in the West London Hospital many cases where this condition was supposed to be present, a proportion of which gave a negative result. Ignoring these, there remained 66 cases of definite obstruction, practically all of a malignant character—less than half a dozen where the spasmodic element was the sole or predominating feature. By X-ray methods he thought that the most common site where malignant stricture of the œsophagus occurs will soon be decided. To get at this radiologists should agree on some uniform division of the œsophagus for purposes of description, and these divisions must have relation to familiar landmarks seen in this locality during X-ray examination. The division that he had adopted was chosen solely because he had found it convenient. The upper part lies above the sterno-clavicular joint; the next corresponds to the aortic arch, and extends from the sterno-clavicular joint to as far below the arch as the joint is above it; the third portion includes that part of the tube where it pierces the diaphragm, and the last one is the region immediately at and including the cardiac orifice. They might be described as (*a*) the upper, (*b*) the aortic, (*c*) the diaphragmatic, and (*d*) the cardiac portions. Applying this division to the present series of 66 cases (eliminating one that was purely spasmodic, as subsequent events proved) stricture occurred with equal frequency in the first and third portions, and also with practically equal frequency in the second and fourth portions. The disparity between the first pair and the second pair—"the odds and the evens"—is very striking, the latter being nearly four times that of the former. The actual figures were: (*a*) Upper (supra-sternal), 7; (*b*) aortic, 25; (*c*) diaphragmatic, 7; and (*d*) cardiac, 26 (total, 65).—Mr. Aslett Baldwin showed: 1. A case of Plastic Operation on Face for Deep Scarring, caused by a German hand grenade wound. Originally there was a drawing down of the left angle of the mouth with inability to open the jaws except to a slight extent. After operation an excellent result was obtained. 2. A woman from whom a large part of the tongue had been removed for a huge papilloma of about one year's growth which had almost completely filled the mouth. Speech was fairly good in spite of the large operation.—Mr. W. E. Fry showed a specimen of Endothelioma of the Tonsil. The woman died at the age of 64 after having had the growth for 18 years. Enucleation had been advised but refused ten years previously.—Dr. Arthur Saunders, Mr. Tyrrell Gray, and Dr. F. S. Palmer also showed cases.

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 13th at the Great Northern Central Hospital. After official business had been taken, Mr. Ernest Shaw read a paper on the Relation of Pathology to Clinical Medicine. He shortly sketched the history of pathology in recent times, emphasising the epoch-marking work of Virchow and Koch in establishing the relationship between bacteria and disease. In describing the action and uses of sera, Mr. Shaw pointed out that as there were many varieties of the same organism an effective serum could only be made from those tissues affected by a particular variety. Hence "stock" sera were of little value. Although Jenner was responsible for the first general use of a vaccine in this country, we owed our modern knowledge of vaccine-therapy primarily to Koch. Mr. Shaw reviewed the diseases of special organs and tissues, showing how much the medical man—whether surgeon, physician, or general practitioner—owes to pathology, both in diagnosis and treatment. Having briefly classified the diseases of blood from the standpoint of the address, he gave several cases in detail to demonstrate how the microscope could often determine in a moment a disease which had defied the most expert clinician. Speaking of the value of blood-cultures, he insisted that the cerebro-spinal fluid also should always receive attention when any condition is present suggesting a lesion of the nervous system. Mr. Shaw justified his classification of tumours, from the surgical point of view, into "simple" and "malignant" by stating that the object of the physician or surgeon was simply to

know whether he was dealing with cancer or not. The method of immediate examination of morbid tissue was described, and failure attributed to faulty technique and ignorance of histology.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—The annual meeting of this society was held at St. Mary's Hospital, Manchester, on Jan. 17th, Dr. Miles Phillips, the President, in the chair.—The secretary's and treasurer's reports were adopted and the officers elected for another year.—Dr. H. Clifford (Manchester) exhibited a specimen of "Cyclops Fœtus," whose single eye showed evidence of being formed of two fused together, and was situated below a prominence which represented the nose.—Dr. W. W. King (Sheffield) exhibited a specimen of "Recurrent Sarcoma after Removal of Apparently Simple Myomata." This patient had had a supravaginal hysterectomy performed five years previously, and when the abdomen was opened a lump was found about the size of a walnut, situated between the ureter and the pelvic wall. This lump was removed and also the cervix, and both exhibited undoubted evidence of sarcoma.—Dr. Fletcher Shaw (Manchester) exhibited "A Pair of Spencer Wells Forceps Removed Through the Vaginal Vault Twelve Years after an Abdominal Section" which had caused no symptoms to the patient, but had merely eroded through the vaginal vault and caused the patient to seek medical advice because of the inconvenience to coitus.—Dr. J. H. Willett (Liverpool) showed a specimen of "Spontaneous Enucleation of Uterine Fibroid." This was about the size of a Tangerine orange and was extruded a few days after labour. Dr. Willett also showed a specimen of "Torsion of the Uterus due to Fibroid."—Dr. W. K. Walls (Manchester) read notes upon "An Advanced Extra-uterine Pregnancy." The patient was seven months pregnant when first seen and a diagnosis of extra-uterine pregnancy was made. As the child was then alive it was decided to allow the pregnancy to continue in the hopes of getting a living child at or near to full term. Fœtal heart sounds were observed daily for a few weeks and then as they had not been heard for a few days it was decided to open the abdomen. The patient was then about eight months pregnant, but unfortunately the child had been dead a few days. There was no particular difficulty in the operation and not much bleeding when the child was removed. The patient made a perfectly good recovery.—Dr. W. E. Fothergill (Manchester) read a note on "Some Aspects of the Gonorrhœal Question."

SOCIÉTÉ DE BIOLOGIE, PARIS.—The following is a summary of some of the papers read at a meeting of this society held on Feb. 8th, 1919.

A. Vernes.—The Sero-Diagnosis of Syphilis.

La différence entre le sérum normal et le sérum syphilitique n'est qu'une question de degré. Il faut donc vérifier l'évolution dans le temps des résultats obtenus. Le véritable caractère sérologique pour le sérum d'un individu syphilitique est l'ampiitude des oscillations observées.

G. Marinesco.—Histological Research on Oxydases.

La réaction des oxydases dans les centres nerveux est mise en évidence par la réaction de Gierke et Graff. La recherche des oxydases existe donc dans presque toutes les glandes que j'ai examinées; hypophyse, thyroïde, foie, rein, rate, etc., et à ce point de vue il y a à établir une différence entre les animaux à sang chaud, les hémothermes et hétérothermes. Chez ces derniers, la réaction est manifeste surtout dans le muscle cardiaque, elle est très faible dans les autres muscles où l'on trouvé beaucoup de substances osmioréductrices.

Le Moigne, Sezary, Demonchy.—Therapeutic Action of Antigonococcus Lipo-Vaccine.

On injecte de sept à trente millions de gonocoques. Dans la grande majorité des cas d'uréthrite aigüe les symptomes douloureux cèdent rapidement; l'écoulement disparait en huit ou quinze jours. La goutte résiduelle ou la sérosité virulente qui peuvent persister disparaissent ensuite rapidement sur l'action d'une ou deux injections de nitrate d'argent. L'évolution est donc notablement accourcie. De plus, chez les malades qu'ils ont pu suivre jusqu'au bout l'affection n'est jamais passée à la chronicité. L'action du lipo-vaccin sur l'orchi-épididymite est rapidement frappante.

S. Marbais.—"The Little Red Bacillus" of Influenza.

Nous avons étudié les caractères d'un petit bacille, Gram négatif, que nous avons trouvé dans l'épanchement purulent et hémorragique des grippés et dans l'exsudat rhino-pharyngien des méningitiques, des diphtériques et des suspects. Ses colonies ressemblent à celles du méningocoque. Injecté en doses croissantes il tue le lapin avec broncho-pneumonie, épanchements purulents et hémorragiques de la plèvre et du péritoine, et septicémies.

HOUSING IN MESOPOTAMIA.—The Military Governor of Basra has given a prize of Rs. 150 for the best papers on each of the following subjects: (*a*) The type of residential house best suited for Europeans in the lowlands of Mesopotamia; (*b*) the type of residential house best suited for Arabs in the lowlands of Mesopotamia, having regard to their special customs.

Reviews and Notices of Books.

Use of Factory Statistics in the Investigation of Industrial Fatigue. By PHILIP SARGANT FLORENCE, M.A. Camb., Columbia University. London: Longmans, Green, and Co. 1918.

THE study of industrial fatigue through the use of factory records—in itself a fascinating subject—is just now of particular interest owing to the thought present in the minds of many that the period of industrial unrest through which we are passing owes its origin in no small way to nervous tension following upon more than four years of unparalleled strain. The incitement to effort has gone, the national danger is passed; it is the morning after the dance; and we are left vaguely wondering whether our efforts would not have been less fatiguing if more scientifically directed. Such direction, however, would have required a knowledge of fatigue in relation to physiology and the powers of normal recovery, and of pathology and the inception of disease, which is not in existence. A recognition of this fact has induced this country (through the establishment of an Industrial Fatigue Research Board) and America to undertake organised research into the whole subject.

We have before us an interesting volume recently published in America, and intended as a manual for field research. The work is clearly the result of prolonged labour. It contains much information and many references to work already done, and from this point of view would-be investigators may be recommended to acquire it. The author, however, has succeeded in so magnifying difficulties that he paralyses thought rather than clarifies ideas, and he frequently hampers his exposition by inventing a terminology altogether unnecessary and lacking in exactitude; and in this he is curiously reminiscent of those pre-Baconian philosophers who prized well-sounding terms beyond an honest fact and of that orator who held that words were meant to conceal thoughts.

An investigator about to embark on the study of industrial fatigue should consult this volume not merely for what it contains and tells him, but as in itself a subject for investigation. He must be ready while perusing it to use his own brains to extract the useful and to reject the unnecessary. As a first exercise for a budding investigator, therefore, the book is of value—a value directly in proportion to the reader's capacity for becoming an investigator. In the true spirit of investigation he must be prepared to search for and extract the useful, which is often submerged in a bewildering sea of obscure classification. Then let him without fear have recourse himself to the clear springs of observation which the author has dipped into and troubled.

This book treats of a new science—a science which, if it is to be of real value, must be studied by, and taught to, managers and employers of labour. The language used by its exponents must for this purpose be simple, clear, and free from all ambiguity. Otherwise the practical manager will turn his back on what will seem to him to be impracticable theories propounded by philosophical pedants. We hardly think that this book will induce any employer of labour to embark forthwith upon the study of industrial fatigue by an investigation of his own factory statistics.

Neurosyphilis: Modern Systematic Diagnosis and Treatment Presented in 137 Case-histories. By E. E. SOUTHARD, M.D., Bullard Professor of Neuro-pathology, Harvard Medical School; and H. C. SOLOMON, M.D., Instructor in Neuro-pathology and in Psychiatry, Harvard Medical School. With an Introduction by J. J. PUTNAM, M.D., Professor Emeritus of Diseases of the Nervous System, Harvard Medical School. With many illustrations. London: Stanley Phillips; Boston: W. M. Leonards. 1918. Pp. 496. 21*s.* net.

WE have already had occasion to review other volumes in the case-history series to which this belongs, and have pointed out what appeared to us their merits and demerits. In the present instance we feel that the advantages of the method have been brought completely to outweigh its disadvantages. Briefly, a long series of cases of neuro-syphilis are offered to the reader in their essentials only, all non-essential clinical details being rigorously pruned; salient

points are emphasised in heavy type; summaries are given at the end of each case, where desirable, and then comes a little series of questions and answers bearing on the diagnosis of the case, and perhaps on its treatment, or on any matter of interest it calls forth. The book sections are six in number: nature and forms of neuro-syphilis; systematic diagnosis of forms of neuro-syphilis; puzzles and errors in the diagnosis of neuro-syphilis; medico-legal and social neuro-syphilis; the treatment of neuro-syphilis; and neuro-syphilis and the war. Each section is illustrated by abundant clinical material. Further, scattered at convenient intervals through the book are "charts" consisting of salient features of neuro-syphilis tabulated as a sort of *memoria technica;* the headings, too, are often arranged in a fashion resembling the insets on some front pages in the newspapers of the day. Thus:—

"TABETIC NEUROSYPHILIS may produce symptoms chiefly if not entirely in the region supplied by the CERVICAL PLEXUS ('cervical tabes')."

or—

"The clinical symptoms of CHRONIC ALCOHOLISM are sometimes largely identical with those of PARETIC NEUROSYPHILIS ('general paresis')."

These indications of originality of presentation may or may not appeal to the conservative English reader; but they are no mere catch-penny attempt at "neuro-syphilis made easy," for our perusal of the book has shown that it contains a mass of solid clinical, pathological, and therapeutic information, thoroughly sifted, well arranged, and eminently practical in all its bearings. We congratulate the authors on the complete success of their experiment in book-making.

Archives of Neurology and Psychiatry. From the Pathological Laboratory of the London County Mental Hospitals. Edited by F. W. MOTT, M.D., F.R.S., &c. (Lieutenant-Colonel, R.A.M.C. T.). Vol. VII. 1918. London: P. S. King and Son. 10*s.* 6*d.*

THE latest volume of papers in neuro-pathology and psycho-pathology issued under the ægis of Dr. F. W. Mott represents the work which he and his colleagues have been prosecuting at the Maudsley Hospital, Denmark Hill. It contains some 12 communications, most, if not all, of which have already been published elsewhere, mainly in the Transactions of the Royal Society of Medicine, during the last three years. Here in convenient and compact form are reprinted Dr. Mott's valuable researches on shell shock and kindred subjects, including his Lettsomian lectures of 1916 on the effects of high explosives upon the central nervous system. In addition there are several useful papers on the interrelation of the endocrine glands and the nervous system both in its organic and functional aspect. The whole volume bears witness to the indefatigable spirit of research animating its editor and his collaborators, and worthily maintains the high level of previous volumes in the series.

Advanced Suggestion (Neuro-induction). By HAYDN BROWN, L.R.C.P. Edin., &c. London: Baillière, Tindall, and Cox. 1918. Pp. 342. 7*s.* 6*d.*

Hypnotic Suggestion and Psycho-therapeutics. By A. BETTS TAPLIN, L.R.C.P. Edin., late President of the Psycho-Medical Society of Great Britain. London: Simpkin, Marshall; Liverpool: Littlebury Brothers. 1918. Pp. 168. 10*s.* 6*d.*

OF making of books on psycho-therapy there seems to be no end. In so far as this is significant of wider application of psycho-therapeutic methods by the profession it is a healthy sign, for the employment of essentially similar methods under high-sounding names by unauthorised practitioners is certainly not decreasing, and there is always a section of the public which prefers the obscure, mysterious, and occult to straightforward, and therefore, presumably forsooth, less impressive and less convincing procedures. The main feature of suggestion-methods is their simplicity, too simple for the "high-brow" who seeks intellectual titillation in the garnishings of the faith-healer, the Christian scientist, the clairvoyant healer, and all the rest of them, whose very existence, as Mr. Haydn Brown says, constitutes a scathing criticism upon the shortcomings of the profession in the study and application of treatment by suggestion.

In the two books under review is contained, under somewhat differing presentations, a body of sound teaching on suggestion-therapy, illustrated by clinical examples of all sorts. Some of these are less impressive than others, and rather convey the idea of somewhat uncritical investigation of the material. Many, however, cannot fail to demonstrate to the sceptical the great practical value of treatment by frank suggestion in suitable cases. If the suggestion-therapist sometimes overstates his position by the exaggerated nature of his claims, this should not blind the physician to the genuineness of his achievements with many cases which "have seen all the best men" and been sent on "in desperation" to the psycho-therapist. Neither of the authors, who write of what they have seen and done, speaks enthusiastically of psycho-analysis as a therapeutic method, though both have had experience of it. The general contention seems to be that efficacious and enduring results can be obtained by simpler technique, that many neurotic cases have had no particular psychical traumata in their history, and that cases already psycho-analysed ineffectually have come to them for further treatment. As convenient text-books of unassuming pretensions they may be recommended to the profession for sympathetic consideration.

Neurological Clinics: Exercises in the Diagnosis of Diseases of the Nervous System. Edited by JOSEPH COLLINS, M.D. New York: Paul B. Hoeber. 1918. Pp. 271. $3.

Dr. Joseph Collins and his colleagues at the Neurological Institute in New York have collected, from large material, a series of clinical cases offering practical lessons in diagnosis, since successful treatment obviously presupposes accurate diagnosis. The cases range through all the aspects of organic and functional neurology and include not a few classifiable as psychiatric. The majority present features of interest and show evidence of careful selection; a few seem to us to have been handled rather superficially, no doubt merely from a praiseworthy effort on the part of the writer at conciseness. There are some 41 cases in the book, which will, we believe, form profitable reading both for the general practitioner and the neurologist.

The Disease and Remedy of Sin. By the Rev. W. MACKINTOSH MACKAY, B.D. London, New York, Toronto: Hodder and Stoughton. Pp. 308. 7*s.* 6*d.*

IN his preface Mr. Mackay defines the scope of this book by describing it as an essay in the Psychology of Sin and Salvation from a medicinal standpoint. Christianity is everywhere regarded as the care and cure of spiritual disease. The result is a book that is original and suggestive, it abounds in medical terms and phrases, and shows the author as well read in philosophy, medicine, and ancient and modern Protestant theology. Sin, its causes, progress and effects, are treated as a physician treats disease; it is traced from its roots upwards in the first part of the book with exhaustive accuracy, while in the second part we have the remedy of sin under such headings as Conversion by Crisis, Conversion by Lysis (by which latter the author means the gradual turning of the life towards God), spiritual surgery in cases of chronic sins, mortal sins, and sins of compromise, the knife being absolute renunciation; any return to the sin so treated is likened to a cancer which recurs after an operation. "The spiritual surgeon should cut off all adhesions as well as the noxious growth."

In his chapter on the Divine Surgery of Pain the author reaches his highest point; his whole treatment of pain is illuminating, especially in his analysis of Hinton's Mystery of Pain, in which he lays his finger unerringly on the weak spot in that work—namely, Hinton's ignorance of the fact that the Incarnation was meant, amongst other things, to teach us that God does suffer pain. The book is in places brilliant, everywhere thoughtful, and yet, as from its very nature perhaps it was bound to do, it leaves us cold; it is a pitiless production.

On p. 15 Mr. Mackay refers to the confessional in the Roman Church, and deplores the lack of such a system in other communions. He appears to be ignorant of the provisions for voluntary confession which are laid down in the Book of Common Prayer. The book, however, is one which no earnest minister of religion can afford to miss, and it will be found helpful to anyone who is called upon to be a director of souls.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 22, 1919.

A New Epidemic Diseases Order and its Effect.

THE Local Government Board have, under the Public Health Acts, issued an Order[1] relating to the prevention of certain epidemic diseases which comes into operation on March 1st and requires to be widely known by men in consulting and general practice, as well as by the public health authorities and medical officers of health to whom it has been officially circulated. By one provision of this Order the diseases termed "acute primary pneumonia" and "acute influenzal pneumonia" are made notifiable to the medical officer of health of the district, and every medical practitioner who becomes aware that a person on whom he is in professional attendance is suffering from these forms of pneumonia is required forthwith to notify the medical officer of health of the district on the same form and in the same manner as for scarlet fever or other acute infectious diseases which are already notifiable. It should be noted that, as no alteration has been made in the Notification of Infectious Disease Regulations of 1918 or in the Emergenoy Provisions Act of 1916, this duty is not accompanied by any special remuneration, though the general obligation of the local authority to pay one shilling in respect of each notification will apply to those reported under the new Order. In using the special emergency powers of Section 130 of the Public Health Act of 1875 to require notification throughout England and Wales, and to give the medical officer of health of the district the duty of taking "such action as he considers necessary and desirable" in each notified case "to prevent the spread of infection and remove conditions favourable to infection," the Order merely follows the practice by which in recent years various other diseases, such as tuberculosis and measles, have been made notifiable under this Act, rather than by the use of the Infectious Diseases (Notification) Acts. In the case of acute and influenzal pneumonia nothing further is required by the Order. The information obtained by notification should have statistical value when the next pandemic of influenza arrives, as the course of its attendant pneumonia can then be followed right through the various phases of prevalence of influenza itself. Meanwhile it will, no doubt, aid knowledge by promoting the study of the circumstances in which pneumonia occurs, and in certain districts at least it should be helpful to local authorities as a guide to the selection of cases in which to provide medical or nursing assistance. This is at present the chief useful result obtained from the notification of measles.

The other infectious diseases made notifiable under this Order are malaria, dysentery (both bacillary and amœbic), and trench fever. These are diseases hitherto of relatively rare occurrence in this country, but which need to be specially provided against in the circumstances attending demobilisation and the resumption of normal traffic with foreign countries after the war. In regard to these diseases, as well as to enteric fever, relapsing fever, and typhus, which are already notifiable, the Order makes a number of specific provisions, based on their known method of spread, which are to be applied in all notified cases. When a medical officer of health becomes aware, by notification or otherwise, of a case of typhus, relapsing fever, or trench fever, he is empowered to take special measures for the destruction of lice, and he can give a notice, addressed to the head of the family or to any person in charge of or in attendance on the patient, or to any other occupant of the building, or to any person with whom the patient has been recently in contact, requiring that person to take, immediately and to the satisfaction of the medical officer of health, specified measures to secure the complete destruction of lice and their products. Action for the same purpose can be required of persons having the control or management of any building, of the person who receives the rent in the case of lodging-houses, and of the master of a ship when a port sanitary district is concerned. These notices must be complied with under risk of substantial penalties. The segregation of contacts until they and their clothing have been completely freed from lice can be similarly enforced. Each case itself must be treated in a suitable hospital unless the medical officer of health is satisfied that treatment elsewhere will be carried out with all such precautions as are necessary to prevent the spread of the disease. The same provisions in regard to hospital treatment are made in the case of dysentery, and special clauses are added, applicable to enteric fever as well as to dysentery, which deal with risks of infection arising from the handling of food. The notices which can be given in the case of these diseases may require the person specified within them to discontinue any occupation connected with the preparation or handling of food or drink for human consumption, or to take suitable measures in respect to cleansing, disinfection, disposal of excreta, destruction of flies, and other matters. A very welcome provision is that relating to carriers of enteric fever or dysentery infection. If there are grounds to suspect that a person engaged in the milk trade or in the preparation of other food is a carrier, facilities are to be given to the medical officer of health at his place of occupation to obtain specimens for examination. When a dangerous carrier is identified on evidence that is considered sufficient the medical officer of health may again proceed by notice, addressed both to the suspected person and to the responsible manager of the business, to prevent the former from continuing in employment involving the preparation and handling of food.

[1] Local Government Board Order P.H. 2A, 1919: "The Public Health (Pneumonia, Malaria, Dysentery, &c.) Regulations, 1919." The accompanying official circular is reproduced substantially on p. 309

All cases of malaria are made notifiable (unless they are known to have previously been notified in the same district within six months), but the special action required of the medical officer of health is limited to those cases in which he considers that steps should be taken to prevent the spread of infection. The greater number of notified cases will be in soldiers and others who have contracted infection abroad and who then relapse in this country: when this fact has been ascertained nothing further will as a rule be required of the medical officer of health. If, however, there is evidence of the disease being contracted locally, he is required to take all practicable steps to see that malarial cases in his area are supplied with mosquito netting, receive necessary quinine treatment, and proper advice as to precautions. On the occurrence of a focus of indigenous malaria (defined as two or more cases contracted within the district) the local authority may be required by the Local Government Board to appoint and pay an approved medical practitioner for house-to-house visits, collection of blood films, and supervision of household precautions. Section 130 of the Public Health Act of 1875, under which this Order is made, was introduced into that Act with the special object of taking emergency measures against imported cholera, and it is interesting to see that after this lapse of time it has proved possible to utilise this section to provide a code of action which is based on scientific knowledge of the prevention of the diseases now in question. The application of the regulations evidently calls for close expert guidance from the centre if they are to be most effectively used. Medical officers of health will need the advice of those who have specialised in the study of diseases such as malaria and dysentery or have special knowledge of the bacteriology of carriers. It is presumably with this object that the Order requires each individual case of trench fever, typhus, relapsing fever, or malaria of indigenous origin to be reported at once by the medical officer of health to the Local Government Board, as well as any outbreak of dysentery. The effect of the Order in practice has yet to be ascertained, but it is evident that its success will largely depend on the opportunities afforded to the epidemiologists of the Local Government Board or of the future Ministry of Health to observe and direct its working. But the spade-work, the diagnosis, will have to be done by the general practitioner, and for shilling fees, unless the public conscience is aroused at the degrading discrepancy between the size of the payment and the importance and responsibility of the judgment which sets this official machinery in motion.

A Tuberculosis Service.

THE meeting held at the Royal Society of Medicine on Saturday last to consider a scheme for the formation of a complete and self-contained tuberculosis service was not a large one, but it was widely representative of the various branches of tuberculosis practice. The meeting was summoned by the Tuberculosis Society, which had previously circulated a draft scheme amongst its members, and this draft, after some modification in detail, was passed substantially in the form submitted by the unanimous vote of those present. Accordingly, a deputation was arranged to wait upon the Prime Minister and the Minister in charge of the Ministry of Health Bill. The scheme, which we print in full on p. 310, asks for a special department of the Ministry of Health to deal with the prevention and treatment of tuberculosis. It asks that the personnel of this department should include medical commissioners, filled from the ranks of the tuberculosis service, who, along with other commissioners appointed by the Crown on account of their special knowledge and experience, should advise a committee representing medicine, the public health services, local authorities, the Ministry of Pensions, trade unions, Friendly Societies, and other organisations interested in social welfare. No doubt will arise in regard to the need for coöperation among all these agencies. The work of controlling tuberculosis has been hampered in one district by lack of funds, in another by deficient resident accommodation, in a third by want of any organisation for after-care, in a fourth by apathy on the part of the public health authority, and in a fifth by failure to coöperate with the general practitioner. All these defects must be remedied if success is to be achieved.

But while admitting the necessity for coöperation in all branches of tuberculosis work, the amateur administrator might argue, with some show of reason, that no far-reaching scheme of prevention and treatment should be organised from top to bottom, from patient to Government department, for the sake of one pathogenic organism. Surely, he would say, the Pfeiffer bacillus or the pneumococcus or the new filter-passer has a similar claim to a special anti-service. But in practice, tuberculosis is a special case. It is a life-long infecting agent of relatively low infective power, raising problems of prevention and treatment which exist side by side and must be dealt with concurrently. Tuberculosis seems, in fact, to provide at present the most promising field for that combination of clinical and administrative service for the development of which all eyes are turned towards the Ministry of Health. The mechanism of such a tuberculosis service may in the future be found applicable to other than the white plague. If so, pneumonia and influenza, standing as they do in such close relation to the problems of tuberculosis, might then be associated with it. But that is no reason for hesitating to make a beginning with the coördination of measures against tuberculosis.

Granted that a special tuberculosis service has its justification at the present time, it is no less certain that its relation to the general public health service must be an intimate one, closer perhaps than Saturday's meeting had in mind. There may be, it is true, a certain number of medical officers of health who are inclined to treat the tuberculosis officer as a clinical tyro; there may be also inexperienced tuberculosis officers with bees in their bonnets, whose acquaintance with the ways of local authorities and with the mechanism neces-

sary to deal with social conditions leaves something to be desired. It is obviously expedient to make the tuberculosis officer responsible for the administration of his own special work; but when all is said and done it would be impossible for him alone to provide those large measures of reconstruction—clean streets, open spaces, proper housing—which are destined to play such a large part in raising the standard of public health on which the prevention of all disease largely depends. The tuberculosis problem will not be solved by working in a water-tight compartment. The spirit of the times is against it. Any such proposal would be reactionary, not reconstructive. We see little hope of lasting benefit from any scheme which does not make the local authority (whether county or county borough) the coördinating centre of all hygienic and social measures in its own area. There is a movement on foot to enlarge the Public Health Service along the lines of the proposed changes in the constitution of the Society of Medical Officers of Health. This is more urgent at the moment than scales of salaries and commissionerships.

Annotations.

"Ne quid nimis."

THE RETURN OF INFLUENZA.

To speak of the return of influenza is to imply that this multiform, obstinate, and in many directions mysterious epidemic, whose manifestations among us at two epochs in 1918 were so serious, had definitely gone, and this, we are certain, should not be assumed. We have not enough knowledge. Major Astor, Parliamentary Secretary to the Local Government Board, stated in the House on Tuesday last, in reply to a question, that influenza may be combated by continuous research and intelligence work: until such endeavours have borne fruit, it must be impossible to say for certain either how long the infection of influenza may linger in a community, or what are the circumstances which conduce to its quick removal or to its long persistence. Many of these circumstances are assuredly common to the natural history of all epidemic visitations, but it is proven, if only by the differing views of expert pathologists, that in the case of influenza we do not yet know the whole story. What, for example, induces changes in age-incidence? And how far is immunity conferred by previous attack or other pathological conditions? The extent to which the disease is now prevalent among us can be gauged from sporadic reports, as well as from such definite figures as those furnished in our summary of vital statistics (see p. 311), and undoubtedly many communities are faced with a return of the troubles which they were experiencing last autumn. While medical men are working along useful lines for prevention and with therapeutic methods which sore experience has perfected, it is the duty of the public to avoid as far as possible the spread of the mischief. The local health authorities may take steps for lessening the public opportunities of infection, but they will be useless till the public is ready to institute for themselves a system of domestic inspection by which prompt medical attention is obtained. Where the public is intelligent the medical service, public and private, becomes doubly efficacious, while remarkable results have been and will be obtained from intelligent nursing. How many serious cases have been saved, and how many less serious cases have been lost, by the respective presence or absence of the competent nurse would be a bold piece of guessing, but, without attempting any exact reply, we are convinced, on the numerous reports which we have received, that when influenza has got a definite hold upon a patient it is the nurse, and anxious domestic care, which turn the scale most frequently in the patient's favour. Major Astor stated the intention of the Local Government Board and other bodies to assist in the provision of medical nursing and domestic aid to those attacked, and any activity displayed along this line will be fully rewarded. Research work has been proceeding for a long time in the hands of many observers, and the medical officers of the Local Government Board are at the present moment in active coöperation with other experts outside the Department by means of a committee which meets at short and regular intervals. All this is most valuable for the direction of preventive measures, both now and in future epidemics; but, in the place where we stand to-day, the two urgent things are the assistance of the medical man by the intelligent coöperation of the public, and the assistance of the patient by the provision of adequate nursing. A memorandum will be issued by the Local Government Board this week recommending the steps which should be taken by the local authorities and also by the public. This memorandum, we understand, will be of a practical nature.

COORDINATION OF MEDICAL SERVICE: SIR GEORGE NEWMAN'S APPOINTMENT.

Sir George Newman, Chief Medical Officer of the Board of Education, has been appointed Principal Medical Officer to the Local Government Board, retaining his position at the Board of Education, where he is also Medical Assessor to the Universities Branch of the Board. The post of Principal Medical Officer to the Local Government Board is a new one, and Sir George Newman will have the position of a Secretary of the Board with administrative duties and responsibilities in respect of the work of his department. It should be clearly understood that this is not the post of "Medical Officer" which was recently held by Sir Arthur Newsholme. Nothing in the new appointment, we are glad to say, prevents the existing medical staff of the Local Government Board, who have been bearing the burden within the department of the public sanitary service, from being advanced to a post of the same standing, if not with the same title, as that recently vacated by Sir Arthur Newsholme. The appointment of Sir George Newman as principal medical officer of the Board is a direct step towards that coördination of public medical service, which has been stated to be the primary object of the Ministry of Health. Sir George Newman has had practical experience, both urban and rural, in the work of the medical officer of health, while he is a recognised authority in school hygiene. Moreover, in all questions of medical and educational administration he has shown himself on the side of the general practitioner, recognising that a medical department can only be run satisfactorily from the top if the real executive, the

private doctor, is given fair play. Dr. Addison and Sir George Newman are in a previously unrealised position—two doctors they are, in their respective spheres, controlling a public medical department. In the present position of the medical profession their opportunities for good are literally huge.

THE ROYAL SOCIETY OF MEDICINE: A SUMMER CONGRESS OF LARYNGOLOGY.

THE Section of Laryngology of the Royal Society of Medicine is showing increased energy with the return of many of its members from the war. Its meetings have had large attendances during the war, being favoured by the presence of many American and over-seas laryngologists. It has therefore decided to convert its annual gathering in May into something more than the usual clinical meeting. On Friday, May 2nd, there will therefore be a summer congress; papers will be read in the morning, demonstrations of cases, operations, specimens, instruments will take place in the afternoon; and it is proposed to arrange a pathological museum of specimens relating to the subject. We understand that all over-sea laryngologists will be heartily welcomed. Those who intend to read papers or join in the discussion are requested to notify the honorary secretaries of the Section not later than March 3rd.

THE QUALITY OF COMMERCIAL VACCINE LYMPH.

IN our correspondence columns we print a letter dealing with recent experience as to the inferior quality of certain samples of commercial vaccine lymph in comparison with that which is issued gratuitously to public vaccinators from the Local Government Board's lymph establishment. This, unfortunately, is by no means the first occasion on which complaint as to the potency of commercial lymph has originated with practitioners, who perforce have to rely on trade sources for their supply. Our correspondent adds to the value of his letter by offering suggestions for meeting the difficulties of the case, urging either the institution of adequate control by Government of trade lymph supplies, or more drastic procedure involving suppression of commercial lymph establishments and instituting gratuitous distribution of Government lymph to all medical practitioners, whether public vaccinators or not. Dissatisfaction with the potency and quality of commercial lymph supplies is, as we have said, not of recent origin, as reference to our own columns in previous years will testify. And from time to time, since glycerinated lymph for use in the public services was first issued by the Government, attempts have been made to bring pressure to bear in Parliament with the object of obtaining official action along the lines of one or both of the schemes advocated by our correspondent. As a matter of fact, the more important private vaccine establishments in this country have, we believe, been officially inspected on occasion; but as regards the considerable supplies of vaccine lymph imported into this country from abroad, it is obviously impossible for the Government to exercise control short of putting a stop to such importation altogether. In the House of Commons, replies to a suggestion that the Government should itself provide all the lymph required for purposes of vaccination have generally been to the effect that it was undesirable to take steps to the detriment of trade interests, especially in view of possibility that in time of pressure the Government might need to enlist the assistance of firms engaged commercially in the production of vaccine lymph. On the other hand, there is much to be said for the contention that in view of State enactments requiring performance of vaccination as a preventive measure, every medical practitioner ought to be in a position to obtain supplies of Government lymph; or, alternatively, of glycerinated lymph produced under conditions of State control and supervision, such as to ensure clinical activity and bacteriological purity as they are shown in the lymph issued from the laboratories of the Local Government Board. During the present war lymph for the vaccination of our military forces has been issued from these laboratories to the extent of some millions of doses, while a stock of at least 1½ million doses is reported to be available in cold storage in case of emergency. In these circumstances it would seem that in the event of the Government deciding to make themselves solely responsible for the production and issue of vaccine lymph in this country, no serious difficulty as to shortage of supplies need be anticipated.

THE EUROPEAN FOOD SITUATION.

WE understand that Lord Parmoor's letter dealing with the facts of the European famine[1] was circulated widely among leading members of the medical profession, along with a summary of these facts, and that a large degree of unanimity was found in the replies to the questions. The first question, directed to the credibility of the reports of starvation, was not answered inasmuch as the medical profession, as such, makes no claim to special sources of information or to any special power of sifting the evidence obtained. But replies, where received, were at one in affirming the permanent ill-effects to be expected from chronic starvation prevailing among the children and young people of all the nations to the east of the Rhine. The Fight the Famine Council has only to establish the existence of this chronic starvation to have the whole of the medical profession on their side in regard to its ill-effects on the coming generation and the urgency of the need to prevent this crippling of a whole continent. Obviously the most important single measure is to ensure the supply of sufficient food to the babies and young children, milk being the simplest form in which this provision can be made, or, failing this, the supply of vegetable fats in some convenient form. From the statements which have reached us we believe that an urgent need does exist, and that the medical profession can usefully educate public opinion in regard to this need. The information section of the Fight the Famine Council has its temporary office at 4, Barton-street, London, S.W.1.

MISS EVA LUCKES.

THE medical world, and the nursing world in particular, will extend the deepest sympathy to the London Hospital in the loss sustained by the death of Miss Eva Luckes, the matron of the hospital. Miss Luckes was educated at Cheltenham College, took her nurse's training at Westminster Hospital, and was appointed matron to the London Hospital in the year 1880, when she was only 26 years old, and had therefore 37 years of strenuous work in

[1] THE LANCET, Jan. 25th, p. 148.

and for the institution until death claimed her at the age of 63. Few of us realise what the conditions of nursing were in her youth. There was no definite scheme of training provided, the pay was paltry, the food was poor and insufficient, and what are now regarded as essentials of civilised life, such as the privacy of a bedroom, or at least of a cubicle, and adequate bathroom accommodation, were then wholly wanting. Miss Luckes on her appointment as matron at once set to work to improve the home condition of the nurses by the institution of cubicles and a proper dietary, and shortly afterwards tackled the question of training by introducing three courses of lectures on general nursing and on the special nursing of medical and surgical cases. Miss Luckes was thus a great and good friend to her own generation, and we cannot blame her for lacking prophetic vision in regard to the future. This limitation led her to set her face firmly against a recognised curriculum of nursing training extending over a fixed number of years, against any qualifying examination, or the registration of such qualifications. Her friends sometimes wondered that one who had done so much for her profession should halt at the point where measures might be taken to place that profession in line with others, protecting the trained nurse and the public from the semi-trained and handy woman. It is not our wish, however, to make her death the text of a discussion on this subject—her views are known, and so is their defence. Miss Luckes's work received official recognition during her life-time. She was appointed Lady of Grace to the Order of St. John of Jerusalem, she received the First Class of the Royal Red Cross, and quite recently the C.B.E. Her "Text-book of Nursing" and her "Lectures to Sisters" are well known and appreciated. The unbounded confidence in her and the affection of her nurses were openly displayed.

THE DISADVANTAGE OF BEING HEALTHY.

LAST week in our correspondence columns Dr. D. M. MacRae, of Bloemfontein, recorded his observation that in Cape Town, during the recent epidemic of influenza, patients with a previous history of chronic catarrhal conditions of the lungs bore the disease well. This disadvantage of being healthy has received a certain amount of support from other scattered observations, similar to those recorded in a letter this week by Dr. W. H. Dickinson, tuberculosis medical officer at Newcastle-upon-Tyne. In one London chest hospital the first influenza wave left almost all the occupants of beds unscathed, and although during the autumnal wave a number of rapidly fatal cases occurred they were mostly admitted with pneumonia already developed. In a thesis on the Clinical Significance of Opsonins circulated in 1907, E. C. Morland noted that six tuberculous patients with slight influenzal infection suffered no diminution of opsonic power while their (healthy) medical attendant had a severe attack which brought down his index to the low value of 0·68.

The *Boston Medical and Surgical Journal* of Jan. 16th contains a remarkable paper by Dr. D. B. Armstrong dealing with the same point. He refers to the fact, so vividly impressed upon us during the last few months, that influenza attacks with special virulence and causes a high mortality among those in the prime of life, in the best physical condition, and most free from previous disease. This difference between the strong and the weak, Dr. Armstrong adds, appears to be due not to the fact that the former are predisposed to influenza, but that the latter are in some way protected against it. In Framingham, Mass., the organisation of the "Community Health and Tuberculosis Demonstration" furnishes reliable statistics on the point. In the recent first epidemic of influenza about 16 per cent. of the entire population were attacked, while only 4 per cent. of the tuberculous portion were. Moreover, most of the tuberculous persons had the disease in an arrested form and were going about and working, and therefore were as much exposed to infection as the remaining part of the population. Indeed, in the arrested cases the incidence was only 2 per cent. Figures from other communities presented at Chicago bear out the Framingham experience. The fatality rate showed the same contrast as the incidence rate; other observations are also in agreement. It is stated that in Washington and St. Louis, where there are large negro populations, influenza, fatal and otherwise, was relatively much less prevalent among the negroes than the whites. The high rate of tuberculosis among negroes is well known. American army medical officers have frequently said that in the camps the northern boy lived while the southern boy died; the city boy lived while the country boy died. Was this due to the fact that the one was more frequently tuberculised than the other? It has been stated that this greater susceptibility of the healthy is true for all types of acute infection. Thus in typhoid epidemics it has been observed that the big, strong, healthy individual falls the readiest victim to fatal disease. But may not this be due to the fact that typhoid infection lowers the resistance to acute respiratory disease and that it is to this complication, as in the case of influenza, the healthy individual succumbs? Thus the suggestion is that a kind of vaccination against acute respiratory disease results from chronic respiratory disease. This form of immunity may, as indicated above, have a relation to race. Framingham statistics showed that the incidence of tuberculosis for the whole population was 2·2 per cent., but for the Italian part only 0·5, while for those of Irish stock it was 4·9 per cent. In the influenza epidemic, on the other hand, there was four times as much influenza and pneumonia among the Italians as among the rest of the community, made up in large part of Irish and Irish-American stock. Should subsequent investigation prove that chronic respiratory disease, particularly tuberculosis, regardless of the race factor, in a measure protects against acute respiratory disease, what is the practical bearing? The disadvantages of chronic disease certainly outweigh any advantages conferred by protection against acute disease. Dr. Armstrong's view is that the solution should be found, as in the case of small-pox, in some form of artificial immunisation. Anti-influenzal vaccination thus has its supporters in many lands.

THE INDIGENOUS DRUGS OF INDIA.

IN a leading article in THE LANCET of Dec. 28th, 1918, we referred to a movement begun by the Government of Bombay in the direction of establishing a pharmacological laboratory and research institute for the investigation of drugs, and more particularly the indigenous drugs of India. We have recently received a copy of a pamphlet written by Mr. J. C. Ghosh, pharmaceutical chemist in the Government Medical Stores, Madras, and published by Messrs. Butterworth and Co. (India), of Calcutta, which deals with the scientific cultivation

and manufacture of indigenous drugs in India, with suggestions for the development of new industries. The resources of the country are evident when the writer points out in a list of drugs recognised by the British Pharmacopœia that 50 per cent. of the drugs are indigenous to India and Ceylon, and that nearly the whole of the rest could be cultivated. Amongst these are such valuable drugs as belladonna, digitalis, hyoscyamus, ipecacuanha, jalap, and podophyllum, but there is little doubt that the list could be extended to other plants by a plan of cultivation on the congenial soil presented by the great continent. Mr. Ghosh has done a good service in showing in what valuable directions developments could be made to go. He suggests the employment officially of a body of trained analysts and the adoption of a course of practical training in not only analytical but in manufacturing work. The latter, of course, includes the details in connexion with the economic extraction of active principles—alkaloids, glucosides, and so forth. With these arrangements set on foot he sees a new opening for the educated Indian as well as the growth of a valuable industry. India, like other of our possessions, has largely relied upon the supply of drugs from abroad, and that fact was made acute when the war broke out. The Indian Government may now well turn its serious attention to the question of realising its own home botanical assets, as brought to light in the pamphlet referred to.

A MEDICAL SCHOOL IN THE FAR EAST.

AN important development of medical education in Northern China is taking place at Tsinanfu, the capital of the province of Shantung. Here in 1904 was established the Shantung Christian University. Two missions, the American Presbyterian and the British Baptist, were concerned in the enterprise, which was nothing less than the setting up of a modern medical school, the medium of instruction being the Chinese language. Difficulties were encountered at the outset, but the promoters refused discouragement, and in 1910 commodious school premises were opened, to which four years later a well-equipped hospital of 118 beds was added. By arrangement with the China Medical Board of the Rockefeller Foundation a large body of medical students was transferred from the Union Medical College in Peking to Tsinanfu in 1916, new laboratories being added at the same time to the original school building. The China Medical Missionary Association urged upon all missionary societies in the country the policy of concentrating at the Tsinanfu school, and the British Advisory Board of Medical Missions endorsed the proposal. Last year a British joint board, representing four coöperating societies—namely, the Baptist Missionary Society, the London Missionary Society, the Society for the Propagation of the Gospel, and the Wesleyan Methodist Missionary Society—was formed in London with the object of promoting the efficiency of the medical school. The board includes in its membership Sir Alfred Pearce Gould, Professor Alexander Macalister, and Sir William Osler.

The Tsinanfu Medical School affords opportunity for service to any who desire to give themselves to medical missionary work in China. The students are drawn from all over the vast republic, and not only are the missionary possibilities very great, but the various professorships afford an attractive field for research and the study of diseases but little known in Europe or America. At the present moment there are vacancies on the teaching staff, which were enumerated last week in our advertisement columns, and the joint board are anxious to find British candidates to fill them. The great need for western medicine in China is made apparent when consideration is given to the system of native practice, which has prevailed in China for many centuries. It has been possible for anyone to set up as a physician, and the old-fashioned Chinese practitioner has been subject to no legal requirements. Although much good has no doubt been done through a knowledge of herbs, anything like a scientific basis for the investigation and diagnosis of disease has been unknown. An old Chinese chart shows the œsophagus passing through the heart, thence to the liver, and from there to the stomach. Imaginative anatomy leads to disastrous surgery. One of the commonest methods of treatment in China has been that of acupuncture; again and again important organs have been punctured with dirty needles, owing to the superstitious notion that the "Evil Spirit" might thus be let out. Many sufferers have been blinded or maimed for life through such a practice. It is scarcely necessary to add anything further to emphasise the need for the spread of western medical science amongst the 400 millions of the Chinese Republic. A report of the Medical School and Hospital, along with any further information desired, may be obtained from Dr. R. Fletcher Moorshead, honorary secretary to the Joint Board, 19, Furnival-street, London, E.C. 4.

RECURRENT MALARIA.

STATEMENTS have been made that during the present war there has been an increase of cases of malaria, a greater degree of recrudescence of the infection, and a more tenacious resistance of it to quinine. Dr. Giuseppe Vaccaro, who has had exceptional opportunities of investigating the subject at the chief military hospital at Leghorn, contributes some interesting remarks on the question in a recent issue of *Il Morgagni* (Archives, No. 12, Dec. 31st, 1918). One explanation that has been put forward of the failure of quinine to prevent these recurrences is that the disease was produced by species of parasite prevalent in Albania and Macedonia which differ from those commonly met with in Europe. It was found, however, that in more than 500 of such cases examined by Dr. Vaccaro the parasite of the species vivax predominated, while the number of cases of malignant tertian and mixed infection seemed rather higher than in patients from the Lower Isonzo. Quinine given rationally and in sufficient doses in these cases acted in such a manner as to exclude not only all doubt as to its efficacy, but also the possibility of new and different parasitic forms being present. Dr. Vaccaro is of opinion that cases of malaria are more numerous because, for military reasons, many individuals stationed in malarial areas have been exposed to infection; that recurrences are more frequent and obstinate because the causes and conditions which have a provocative influence over the onset and recrudescence of the infection act together with more insistence and frequency, such as change of climate, exposure to cold, hardships, and wounds; that quinine has not given the results that were expected of it because the patients were not subjected, for easily understood reasons, to a reasonably sufficient and prolonged treatment, and, in addition, the infection has been extensively diffused owing to the large number of

gametiferous patients left at large. The fact, however, that many patients have violent relapses, even while under treatment by quinine, is an indication that the problem of recurrent malaria is an important one. The prevalent theory, that of Bignami, is that relapses are connected with the survival of asexual elements, which, either from their degree of development or because quinine resistant, take refuge in internal organs, where they remain living but inert, until from some provocative cause they develop and constitute a fresh febrile crisis. This theory, which might explain relapses which occur within a few days after the cessation of fever with incomplete or suspended quinine therapy, fails to account for those which manifest themselves a long time after the fever has ceased and after systematic quinine treatment, much less for those which occur at long intervals or before epidemics. The capacity of long survival in asexual parasitic elements, whose vitality is bound up with the precarious vitality of the red blood cells, at whose expense they live, seems to Dr. Vaccaro to be untenable and not consistent with the sudden and violent manner in which the clinical febrile symptoms show themselves. Even admitting the possibility of survival of asexual elements as an explanation of relapses after a short interval, the cessation of fever would depend upon the small number of these elements which survive the action of quinine or the defensive reaction of the organism, and are no longer capable of provoking a febrile reaction, and would not depend upon the interruption of reproductive development. This interpretation of returns of activity of malarial infection justifies the indication to persist in the administration of quinine with the object of suppressing completely the febrogenetic generation for a long time after the febrile attacks themselves have ceased.

In the present state of our knowledge we do not know the final transformations which the sexual elements have to undergo in order to bring the parasite to develop a fresh generation, but it may be that the gametocytes can remain inactive in the hæmatopoietic viscera and under the influence of some internal or external cause develop and give rise to parasites of febrogenetic generation. This theory, which attributes recurrences of malaria to the survival of sexual rather than asexual elements of the parasite, seems to Dr. Vaccaro to be the more probable. It is, in his opinion, highly improbable that any recrudescence of survived asexual elements could resist the action of quinine already in the system; and if quinine resisting, once launched into the circulation they would soon be extinct, whereas numerous parasitic elements can be found in the circulating blood on the first attack of a relapse. It seems, therefore, more reasonable to admit that the gametes arising from the development of the sexual elements are attacked by quinine less effectively than the young merozoites arising directly from the sporulation of the mature asexual elements, and hence the relapse takes place even while successive generations become quickly extinct and disappear under the influence of the specific drug.

THE Ministry of Health Bill was read for the first time on Monday last, Feb. 17th, and will be found, practically in full, in our Parliamentary Intelligence.

THE NEW LOCAL GOVERNMENT BOARD REGULATIONS FOR CONTROL AND TREATMENT OF CERTAIN EPIDEMIC DISEASES.

CIRCULAR P.H.2. 1919 deals with the Public Health (Pneumonia Malaria, Dysentery, &c.) Regulations, 1918, issued by the Local Government Board to sanitary authorities. The regulations have been made with the object of securing better control over, and means for treatment of, certain epidemic diseases which are prevalent or threatened at the present time.

Notification of Acute Primary Pneumonia and Acute Influenzal Pneumonia.

Pneumonia, irrespective of the pneumonia complicating influenza, is one of the chief causes of death in this country, and the possibilities of bringing it under control have been frequently considered. Apart from the possibilities of diminishing its prevalence, the recent epidemic of influenza has shown the grave need for additional assistance in the care of cases of pneumonia. The present regulations are intended primarily to meet this need; but it is hoped that notification of cases of pneumonia will be followed by investigation of the conditions under which it occurs, and increased knowledge of its natural history. The regulations impose the duty of notification by a medical practitioner of each case of pneumonia occurring in his practice, when the disease is primary, or when it occurs as the result of an attack of influenza.

Malaria, Dysentery, and Trench Fever.

During 1917 and 1918 a few local outbreaks of bacillary dysentery and also of malaria due to infection contracted in the United Kingdom, have come under notice. Their study by the Board's expert officers, in association with the expert officers of the Army Medical Department, has shown that it is particularly important that public health authorities should become aware of the occurrence of any cases of malaria or dysentery at the earliest moment, so that prompt and effective action may be taken to ascertain whether in the circumstances there are any risks of the disease being spread and, where such risks arise, to apply the appropriate precautionary measures. The disease trench fever, which has caused serious epidemics in different war areas abroad, has not, so far as is known, hitherto spread in England and Wales. Trench fever, however, has been shown to be a disease the infection of which is carried by lice, and it is important that the occurrence of any case of trench fever in civil life should at once be made the occasion of special measures to limit the infection and to secure that persons in the patient's household, and those recently in contact with him, should be effectively freed from all parasites which can convey infection.

In view of these considerations and of the possibility that the opportunities of introduction of the infection of these diseases will be increased under the circumstances of demobilisation and the greater traffic with foreign countries which is now to be expected, the Board have in these regulations enlarged the duties and strengthened the powers of sanitary authorities and their medical officers of health in regard to each of these diseases, and are prepared to aid the work, whenever necessary, by advice or assistance from their own medical staff. The regulations require all cases of malaria, dysentery, and trench fever to be notified by medical practitioners unless to their knowledge they have been previously notified in the same district within six months.

Enteric, Typhus, and Relapsing Fevers.

Certain powers and duties imposed in the case of dysentery, particularly those to prevent infection being conveyed by the handling of food by "carriers," are made applicable also to enteric (typhoid and paratyphoid) fever. Similarly the powers and duties in relation to trench fever are extended to two other diseases the infection of which is conveyed by lice—viz., typhus and relapsing fever.

Special Information in Certain Cases.

The regulations require the medical officer of health immediately to send to the Board the name and address of any case which comes to his notice of typhus, relapsing fever or trench fever, or of any case of malaria in which he has reason to believe that the infection has been contracted in the United Kingdom. He is also required to give the Board immediate information of any outbreak of dysentery in his district. Similar information, except in the case of county boroughs, should be sent to the medical officer of health of the administrative county. These provisions have been made in order that the Board may be in a position at once to make any necessary inquiries or give any necessary

warnings outside the district from which the case is reported, and also to enable expert investigation to be made by the Board's medical inspectors or pathologists should the case so require.

Provision of Medical Assistance.

The local authority is empowered to provide medical assistance, which includes nursing, for patients who are in need of such assistance, and are suffering from pneumonia, or any of the other diseases mentioned in the regulations.

General.

The regulations will take effect on March 1st next, and notice of the provisions as to notification should be given forthwith to all medical practitioners resident in or practising in the district.

Copies of the Order and of this Circular may be obtained, either directly or through any bookseller, from H.M. Stationery Office at the following addresses: Imperial House, Kingsway, London, W.C. 2; 28, Abingdon-street, London, S.W. 1; 37, Peter-street, Manchester; and 1, St. Andrew's-crescent, Cardiff.

TUBERCULOSIS.

The Tuberculous Ex-service Man.

THE very urgent nature of the problem presented by the 50,000 invalided men already discharged from the Services suffering from tuberculous disease formed the text of a strong appeal for the appointment of a Select Committee made by Dr. Nathan Raw in a maiden speech delivered in the House of Commons on Feb. 14th (see Parliamentary Intelligence in other column). The problem, especially the effect of the discharge of these men upon the civilian population, will form the basis of an address to be delivered at the Central Hall, Westminster, on Thursday, Feb. 27th, by Mr. P. C. Varrier-Jones, principal of the Papworth Tuberculosis Colony, entitled "The Consumptive Soldier and Civilian." Mr. P. Rockliff, chairman of the London Insurance Committee, will preside, and a discussion on after-care and the economic problems involved will follow, in which Professor Sims Woodhead, Dr. Noel D. Bardswell, and Sir StClair Thomson, among others, are expected to take part.

Suggested Scheme for a Tuberculosis Service.

A representative conference of tuberculosis officers met at the Royal Society of Medicine on Feb. 15th, by arrangement of the Tuberculosis Society, to consider a scheme for the formation of a complete tuberculosis service under the control of a separate department to be established in the coming Ministry of Health. A scheme, previously printed and circulated, was presented as a basis for discussion, and after considerable modification was unanimously approved in the following form:—

1. That a special department of the Ministry of Health in each country be created for the prevention and treatment of tuberculosis. The personnel of these departments should include three Commissioners of Tuberculosis in England, one in Wales, two in Scotland, and two in Ireland. These Commissioners should be appointed by the Crown. They should have special knowledge and experience of tuberculosis. A Medical Commissionership, being the highest appointment in the Tuberculosis Service hereinafter mentioned, should be filled by promotion from the ranks of that service. The Commissioners of Tuberculosis should advise a committee, representing medicine, the Public Health Service, local authorities, Ministry of Pensions, trade unions, Friendly Societies, and other organisations interested in social welfare, in each of the respective countries. The Department of Tuberculosis thus constituted in each Ministry of Health would undertake the following duties:—(*a*) To be reponsible for general administrative measures against tuberculosis throughout the countries concerned. (*b*) To be responsible for statistics relating to the disease, and to furnish an annual report as to the results of all forms of treatment. (*c*) To suggest, advise, direct, and if necessary finance schemes of after-care and employment of tuberculous patients. (*d*) To direct, to supervise, and to finance an educational programme by means of lectures, travelling exhibitions, appropriate cinema films, and by any other means. (*e*) To direct and to finance research work in relation to the disease. (*f*) To study housing and conditions of work in relation to the incidence of tuberculosis, and to promote legislation dealing with this matter.

2. That Deputy Commissioners of Tuberculosis be appointed by the Crown. These Deputy Commissioners would work under the direction of the Commissioners, and should be appointed from the ranks of medical practitioners in the Tuberculosis Service. Deputy Commissioners of Tuberculosis would undertake the following duties: (*a*) To be responsible for an administrative area and to report direct to the Commissioners as to whether the recommendations made by the Department of Tuberculosis are being carried out locally. (*b*) To report to the Commissioners on the care of tuberculous patients throughout the country, these reports being based on the results of direct inspection. (*c*) To ascertain whether adequate provision has been made in every administrative area for all tuberculous patients. (*d*) To visit every class of institution, to report on the efficiency of treatment, and to ascertain whether suitable cases are being dealt with by appropriate institutions. (*e*) To confer with the tuberculosis officer, the medical officer of health, and the local sanitary authority in each area on all matters pertaining to tuberculosis.

3. That tuberculosis officers be appointed throughout the kingdom. Prior to any such appointment the selected candidate should be approved by the Commissioners of Tuberculosis. No medical practitioner should be appointed as tuberculosis officer without having had (*a*) experience in general practice, and (*b*) experience as resident physician or surgeon in a general hospital, followed by one year's special experience in an institution for the treatment of tuberculosis. Tuberculosis officers would undertake the following duties: (*a*) To act as administrative and clinical officer as regards tuberculosis in each area. (*b*) To be the direct adviser of the local authority as regards the prevention and treatment of tuberculosis in that area. (*c*) To furnish such reports as may be required by the Commissioners of Tuberculosis and by the local authority. (*d*) To report to the medical officer of health as regards any insanitary conditions affecting the incidence of tuberculosis. (*e*) To supervise the after care and employment of tuberculous patients in his district. (*f*) To select patients for treatment in institutions and in their own homes. (*g*) To act as consultant in conjunction with practitioners who may desire his services.

4. That to assist the tuberculosis officer in these duties an adequate number of assistant tuberculosis officers, of nurses, and of trained health visitors be appointed by the local authority.

5. That in respect of the foregoing services adequate salaries should be paid.

6. That reasonable security of tenure be assured to these officers by the Department of Tuberculosis.

7. That central arrangements be made for the superannuation of all the foregoing officers on a contributory basis.

It was resolved to bring the scheme before the Prime Minister and Dr. Addison at an early date by a deputation composed of tuberculosis officers representative of all groups and districts.

Government Contributions to Residential Treatment of Tuberculosis.

The Local Government Board, in a circular dated Dec. 28th, 1918, has drawn attention to the new financial arrangements for the provision of residential treatment for discharged tuberculous soldiers. These arrangements came into operation on Jan. 1st last, and they provide, among other things, for the whole cost of treatment being defrayed by the Exchequer, so far as it is not met out of insurance funds.

Hull After-care Colony.

The first annual report of the Hull After-care Colony for 1918 gives an account of an undertaking run largely on the lines of the Springfield Colony at Edinburgh. It was decided that, with a view to limiting the liability of individual members engaged in this undertaking, a company should be established (not for profit) without the word "Limited" in its title. The sanction of the Board of Trade was obtained for this plan and a licence secured to hold 100 acres of land. As a result of negotiations the Hull Corporation, Insurance Committees, and Local War Pensions Committees agreed to contribute a weekly maintenance rate in respect of each colonist. Only arrested or non-infectious cases of tuberculosis are eligible for admission, and the rule that anyone who develops active symptoms must be discharged has already been enforced in two cases. The present accommodation is for 17 men and 8 women. Hitherto local applicants fulfilling the necessary qualifications for admission have been so few that accommodation has been found also for applicants from distant parts of the country. Each colonist is trained in rearing poultry, pigs, and cattle, and in intensive horticulture. The colony is under the supervision of the tuberculosis officer for the East Riding County Council.

Bournemouth After-care Colony.

The annual report of the Tuberculosis Aid and After-care Association for the County Borough of Bournemouth outlines a scheme for establishing a small-holding at Kinson, Dorset, in conjunction with the farm colony already established there. It is suggested that the small-holding should not be managed with a view to immediate profit or even self support, but that it should be a training centre for tuberculous patients. Arrangements are being made for the Y.M.C.A. to provide sleeping and living accommodation in the existing administrative block of buildings. It will also be responsible for the maintenance and training of the patients at an inclusive cost of 35*s.* per head.

Welsh National Memorial Association.

Dr. H. E. Watson, medical superintendent of the North Wales Sanatorium, Denbigh, in the February number of *The Welsh Outlook*, has reviewed the development of the Association's scheme since 1912. In the latter part of that year it controlled only about 31 sanatorium beds. Early in 1919 its two sanatoriums in North and South Wales alone

could accommodate almost 600 patients. Of the 515 patients treated in sanatoriums under the Association in 1913, 255, or 49·5 per cent., were found to be well and at work on March 31st, 1918. Of the 790 patients treated in 1914, 52·1 per cent. were well and at work in 1918.

Compulsory Notification of Tuberculosis in France.

In a recent interview M. Louis Mourier, Under Secretary of State, has outlined his scheme for making tuberculosis a notifiable disease. This scheme is to go hand-in-hand with the development of sanatorium treatment on State lines. He recognises that State control is essential and that notification is inevitable. It would appear that he anticipates a certain amount of opposition from the medical profession.[1]

Decline of Tuberculosis in Trinidad.

The thirteenth annual report of the Trinidad Association for the Prevention and Treatment of Tuberculosis is a striking testimony to the efficiency of the crusade against tuberculosis in this colony. At the time the association was founded (1905) the death-rate from tuberculosis showed a decided upward tendency, being 216 per 100,000 in 1902–3 and 258 in 1905–6. In 1917 this death-rate had fallen to 126. A comparison with the death-rate 13 years ago in Trinidad and Tobago shows that it has fallen 49·4 per cent. As the medical officer of the Association, Dr. G. S. Masson, points out, Trinidad has thus reduced its death-rate from tuberculosis by 49·4 per cent. in nearly half the time that it took England to reduce her tuberculosis death-rate by 30 9 per cent. It is suggested that the results achieved in Trinidad may eventually lead to a revision of the assumption that native races are especially susceptible to tuberculosis, for in the past it would appear that the "susceptibility" of the natives in Trinidad has largely been due to mass infection in association with overcrowding and other insanitary conditions.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Indian Systems of Medicine.

AN interesting summary of the views of local governments and administrations on the questions of placing indigenous systems of medicine on a scientific basis was before the last session of the Imperial Legislative Council. The unanimous opinion was expressed that the proposition was an impossible one. The systems in question, it affirmed, were a survival of a state of medical knowledge which once prevailed in Europe, but had been superseded by a series of scientific discoveries extending over several centuries. "They ignore," it was said, "the instruments of scientific investigation which have made modern medicine and surgery possible, and the theories on which they are based are demonstrably unsound. Even at the present time there are numerous practitioners who have superimposed a knowledge of Western medicine on Ayurvedic instruction or *vice versa*, but there is evidence that these men do not possess the confidence of the people to the same degree as practitioners who have been trained solely in accordance with the strict tenets of the Ayuviya, and the latter are strongly opposed to any form of Government interference. If advance is to be made on these lines it is essential that there should be a strong movement among indigenous practitioners supported by public opinion to reform and organise themselves, and of such a movement there is at present little or no evidence." The summary went on to say that the hold which ancient systems undoubtedly have on the masses is attributable in part to a form of credulity analogous to the belief in the magical efficacy of quack drugs and patent medicines which is still found in Western countries, but the popularity of these systems is chiefly due to the smallness of the fees which their practitioners are willing to accept. The attendance at Government hospitals and dispensaries where the treatment is gratuitous proves that the value of such treatment is appreciated, and in the opinion of local governments it would be a grave misuse of public revenues to divert the funds available for this purpose to the encouragement of systems which they consider to be unsound. There is, however, the statement proceeds, one line of research which is likely to be fruitful, and that is the scientific investigation of the properties of indigenous drugs. Several local governments have already considered measures for conducting such investigations, but these measures have had to be postponed owing to the impossibility of obtaining during the war the services of competent pharmacologists.

Medical Research in India.

A small informal committee of medical men met recently at Delhi in order to consider the future of medical research in India, the composition of the staff which will be requisite and the terms of their employment, and the relation of the Research Department to the public health organisation.

Sick Pay for Indian Nursing Sisters.

It has been decided, with the approval of the Secretary of State for India, that lady nurses of the Queen Alexandra Military Nursing Service for India invalided on account of wounds or sickness due to field service will receive during sick leave full pay for the first three months and thereafter three-quarters pay for six months and two-thirds pay for such additional sick leave as may be granted up to a total period of two years. Under this decision, which will have effect from Feb. 17th, 1917, sick leave cannot be combined with privilege leave.

New Honorary Surgeon to the Viceroy.

Lieutenant-Colonel J. B. Smith has been appointed honorary surgeon to the Viceroy, vice Colonel H. F. Cleveland. His pupils in every quarter of the globe will be glad of this appreciation of his distinguished services to ophthalmic surgery.

Allegations of Cannibalism in Sind.

A great deal of interest has been roused in Sind by the trial of two men at Karachi for alleged cannibalism. This is the first case of the kind for many years.

Simla and Delhi Health Officers.

Captain E. S. Phipson, I.M.S., has been appointed health officer of Simla, vice Major J. M. Holmes, I.M.S., who has returned to Delhi as health officer.

Major Cook, I.M.S., has been posted to the United Provinces, appointed civil surgeon of Moradabad.

Jan. 25th.

URBAN VITAL STATISTICS.

(Week ended Feb. 15th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had increased from 15·0 to 21·0 per 1000 in the three preceding weeks, further rose to 27·8 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 27·2, or 7·0 per 1000 above that recorded in the previous week; among the remaining towns the rates ranged from 8·1 in Coventry, 12 8 in Eastbourne, and 13·9 in Tottenham, to 43 6 in South Shields, 43·9 in Huddersfield, 51·6 in Wolverhampton, 61·0 in Newcastle-on-Tyne, and 62·5 in Tynemouth. The principal epidemic diseases caused 172 deaths, which corresponded to an annual rate of 0·5 per 1000, and included 48 from infantile diarrhœa, 44 from diphtheria, 27 from measles, 25 from scarlet fever, 23 from whooping-cough, and 5 from enteric fever. The deaths from influenza, which had been 222, 272, and 604 in the three preceding weeks, further rose to 1363, and included 273 in London, 148 in Liverpool, 119 in Newcastle-on-Tyne, 50 in Bradford, 44 in Manchester, and 32 in South Shields. There were 2 cases of small-pox, 1094 of scarlet fever, and 1179 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 5, 1080, and 1156 respectively at the end of the previous week. The causes of 80 deaths in the 96 towns were uncertified, of which 15 were registered in Birmingham, 14 in Liverpool, 6 in London, and 4 in Sunderland.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had increased from 17·0 to 23·8 per 1000 in the four preceding weeks, further rose to 32·0 per 1000. The deaths from influenza numbered 76, while in 298 deaths classified as due to other conditions influenza was a contributory cause; in the previous week these numbers were 31 and 164 respectively. The 677 deaths in Glasgow corresponded to an annual rate of 31·6 per 1000, and included 23 from whooping-cough, 9 from diphtheria, 5 from infantile diarrhœa, and 2 from measles. The 333 deaths in Edinburgh were equal to a rate of 51·6 per 1000, and included 10 from whooping-cough, 4 from diphtheria, and 1 each from measles and scarlet fever.

Irish Towns.—The 259 deaths in Dublin corresponded to an annual rate of 33·3, or 8·3 per 1000 above that recorded in the previous week, and included 6 from infantile diarrhœa, 2 from whooping-cough, 1 each from measles and scarlet fever, and 21 from influenza. The 175 deaths in Belfast were equal to a rate of 22·8 per 1000, and included 2 from diphtheria and 1 from infantile diarrhœa.

DONATIONS AND BEQUESTS.—The late Captain Edward Geoffrey Watson Smyth, of the Coldstream Guards, has bequeathed £2000 to St. Dunstan's Hostel for the Blind.

[1] THE LANCET, 1919, i., 233, 229.

Correspondence.

"Audi alteram partem."

BIOLOGY AND THE MEDICAL CURRICULUM.

To the Editor of THE LANCET.

SIR,—I should like to support strongly Mr. T. G. Hill's plea for the more efficient instruction of the medical student in biology. That medicine is a biological subject is one of those truths so plain that we are all apt to forget it. The botany and animal morphology which have become conventional since Huxley and Martin are pretty good, but Mr. Hill's idea of merging them into a sound biology is very much better. In recent years there has been a progressive degradation of the relative position of biology in the medical curriculum in London, and by a curious coincidence the importance of the general ideas of biology to medicine has become increasingly obvious. The central point of pathology is adaptation and on the whole I should say that no idea seems to be more novel to the average medical student in his third or fourth year. Yet it is pretty nearly the central point of biology as well, though I daresay I have some pathological prejudice as to this.

But let the student be taught biology, and not just the odds and ends which his teacher imagines will be useful to him as a medical man. There is nothing really very scandalous in the pathologist who did not recognise a spiral vessel so long as he knew who to worry for the solution of his difficulties. Knowing where to look for a thing is very nearly as good as knowing it off-hand. The principle of the relations of plants to one another and to their environment is the sort of general notion which will be of permanent and insistent value in the business at which the student is to spend his life. And if a more effective teaching of biology is necessary, it is equally impossible to cram anything more into the curriculum. If biology is to have more room it must be at the expense of some other subject. Chemistry is the most obvious victim; it is not a particularly educative subject, and as the key which we have been so often told is to undo all our troubles it has seemed to work rather stiffly. A good many people seem nowadays to be thinking that biological problems are best tackled by biological methods.

I am, Sir, yours faithfully,

Radlett, Feb. 17th, 1919. A. E. BOYCOTT.

MEDICINE, PARLIAMENT, AND PUBLIC.

To the Editor of THE LANCET.

SIR,—In view of Sir Henry Morris's plea in your issue of Feb. 1st, of the turbulent meeting in Wigmore Hall on Feb. 9th, and of Dr. Addison's meeting in which he expounded some of his proposals for the Ministry of Health, may an old advocate of such a Ministry and a political candidate of 13 years' standing make a few suggestions?

The demands and rights of the profession cannot be authoritatively expressed by any body which will be qualified to contribute the special knowledge and experience of the profession to the conduct of the public services. The latter requires a specially selected body, such as the Medical Parliamentary Committee, or else the medical corporations and institutions themselves, to give expert advice. It will be the duty of the Minister of Health, with the help of his advisory councils, to attach relative weight to such advice, according to its internal or external evidence of importance. No democratically elected "Medical Parliament" could take over this function, nor would such a body be free from the necessity, where medical rights were at stake, of unconsciously subordinating its other recommendations to the defence of such rights. A medical trade union may or may not be necessary for such defence, but its advice to the State would be suspect. We must contribute advice that is not suspect. The two objects must be treated separately, and it is my own opinion that the existing corporations and institutions are able to give the advice required for the second and more general object. The Medical Parliamentary Committee may help as a clearing-house, but its authority will be indirect, voluntary, partial, and the work of such a body rests on a few men who have many claims on their time and energies.

The main requirement is to watch closely the statutory machinery to be set up in connexion with the proposed Ministry, to help it, scientifically to criticise it, and to bring weight to bear in Parliament to secure efficiency and prevent mistakes. For this purpose efficient Parliamentary representatives, medical or lay, are essential; and if the Medical Parliamentary Committee succeeds in putting effective representatives into Parliament and on to local authorities it will provide the only effective influence on behalf of medical science in public business.

It is too often overlooked that a Member of Parliament must primarily represent a constituency and not any profession, science, or other particular interest. He represents his constituents in all the proceedings, great or small, in which they or any of them may be concerned within the ambit of Parliament or of any Government department. And throughout he holds a brief for the particular policy or attitude of the political association that supported his candidature. It is only subject to these considerations that he can make use of his medical experience—and he will not find it of much help towards his election.

It is for lack of these considerations that the medical profession, as compared especially with the legal, is so weakly represented in Parliament. Quite apart from party, politics is a subject of great complexity, and requires no smattering, but a sound knowledge and a strenuous, practical experience. Without this equipment few candidates will be elected and none will exercise any considerable power in the counsels of Parliament. There, as in private practice, the most convincing facts, the soundest advice, are useless unless conveyed to the proper person, at the proper time, in the proper way, and in the proper place; and then they must be driven home with the aid of every direct or adventitious force that can be summoned to their aid. If a few of our best men, at the outset of their qualified career, instead of devoting their spare time to coaching and other by-play, will devote all their energies to this subject, as do many young lawyers, the medical profession may then confidently expect to play some part in the Government of the nation comparable with that which, despite all criticism, has on the whole so worthily been played by the legal profession and other sections of the community.

I am, Sir, yours faithfully,

F. E. FREMANTLE,
Lieutenant Colonel, R.A.M.C., T.F.

Queensberry-place, S.W., Feb. 19th, 1919.

STATE MEDICAL SERVICE: A COMPARISON WITH THE MILITARY PATTERN.

To the Editor of THE LANCET.

SIR,—A good deal has been written for and against a State Medical Service. The subject continues to be discussed from diverse points of view, and in support of the argument for such a service and of the lines on which it should be framed the Army Medical Service has been much quoted. Again, the proposed civil service has been discussed in a manner which makes it evident that some regard its adoption as necessarily involving the disappearance of the general practitioner, and that the survival or suppression of general practice is the crux of the whole business. The medical service of the Army does not make provision for some needs that amongst the civil population a medical service must provide for, and though in general the military could serve as a model for the civil service, they must necessarily differ in some detail. While the Army Medical Service is organised with a view to removal of the sick and injured to central hospitals, and treatment "in quarters" by visiting medical officers is made the exception, among the civil population the reverse holds good, the majority of sick persons being treated in their homes ("in quarters") and but comparatively few in hospital. It is not feasible, with advantage, to alter the position materially in either case. The medical officer to a regimental unit (e.g., a battalion of infantry) may be taken as the equivalent of the general practitioner of civil practice, but he does not retain under his care any but those who are suffering from quite trivial ailments which do not unfit them for some form of duty. In times of peace regimental units do not ordinarily have a medical officer attached to them. A system is adopted for dealing with the sick or injured soldier which resolves itself

into treatment being given in hospitals and at medical inspection rooms, located conveniently in garrisons, according to the nature of the disability.

It will at once be obvious that this method of dealing with the sick is the reverse of what obtains in civil life: the patient comes or is brought to the doctor instead of *vice versa*. It also results that the military medical officer has at hand means ready for the diagnosis and treatment of such injuries and diseases as he finds are beyond his resources. Since inter-communication is established between hospitals and officers in immediate medical charge of troops, and as these officers have access to wards and laboratories, if not actual duties to perform in hospital, it follows that every opportunity is afforded them of watching or practising methods of diagnosis and treatment which the conditions of their service debar them, for the time being at least, from actually carrying out themselves. Obviously this arrangement is highly beneficial to both "doctor and patient," since the former has no difficulty when need arises for expert assistance in diagnosis and treatment in obtaining it, and for keeping well abreast of all advances in both matters, while the patient need suffer no delay in obtaining "further advice" or special forms of treatment when such are required.

Turning to the conditions of civil practice, there is no organisation affording equally and to all the assistance they may require beyond what can be given by the general practitioner. The Public Health Service has means for dealing with certain diseases in a limited way, charitable institutions and the Poor-law provide for the least well-to-do, but a large percentage of the population is unassisted by these means, and as more costly methods are naturally not very readily sought after the public health suffers accordingly. The pressing need is to assist the general practitioner in obtaining diagnosis and treatment of those cases beyond his resources in a way that will neither injure his reputation nor excuse him from availing himself of them.

If this principle is accepted and developments are shaped along these lines there will be no suppression of general practice, it would rather be reinforced, supervised, and made more effective. In a tentative sort of way the Public Health Service does this by treating certain diseases, and affording means of diagnosis for all (e.g., tuberculosis), and it does not require great imaginative power to see how these small beginnings could be developed to cover a much wider field so as to render assistance both to doctor and patient which it is difficult for any but the very poor or rich to obtain. A service of the kind indicated would be costly if it is to include the whole field of medicine, surgery, and midwifery, for to run it on decent and efficient lines would entail the provision of buildings, equipment, and personnel of unquestionable quality. But it should cause at its inception less disturbance to existing conditions than any scheme involving the abolition at the outset of the general practitioner.

I am, Sir, yours faithfully,

Feb. 14th, 1919. J. H. P. GRAHAM.

THE QUALITY OF COMMERCIAL VACCINE LYMPH.

To the Editor of THE LANCET.

SIR,—I am anxious to draw attention to the present condition of some of the vaccine lymphs as sold to general practitioners. Being attached to the Infant Department of one of the leading hospitals, part of my duty is to vaccinate infants there with lymph obtained from the Government laboratories. At the same time I am vaccinating children in my ordinary practice with lymph supplied commercially; for the Government lymph is not for sale and quite unprocurable for use in private practice.

For six months past I have been suspicious as to the efficacy of the lymph sold to us and I am now able to prove the comparative worthlessness of some of these lymphs. At the hospital, where I use Government lymph, failure to obtain a perfect vesicle at the site of every inoculation is rare. It is rarer to get all places to "take" when using a commercial lymph in private practice. Far more commonly one or perhaps two places take in a feeble and unsatisfactory manner. Sometimes no inoculation takes and this even after vaccination has been repeated. Recently, for instance, I vaccinated an infant in private practice with lymph with a good name from a well-known chemist. I inoculated in three places—none took. After an interval I inoculated again in three places with fresh vaccine—none took. I succeeded in getting a tube of Government lymph and, using this, obtained three perfect vesicles.

Now the public are not fond of having their infants revaccinated due to failure of lymph, and when after a second time a feeble result occurs in one place only, the practitioner certifies the child as "successfully vaccinated," warning the parents that the infant is only partially protected and should be revaccinated in a year, or he may even fail to do this, when the child remains a standing danger to the community. There is one lymph for the rich and one for the poor, and in this case I plead for the rich.

The importance of this matter can hardly be exaggerated, and if we *must* use a commercial lymph I would urge for an adequate control by Government of such lymph. But I would go further and press for the suppression of all commercial lymph establishments and the distribution for use of lymph adequate in power and free of cost by the Government. The risk of life and the danger to others of these partially protected, and soon unprotected, children is becoming ever greater, and I trust that one of the first duties of a Health Minister will be to deal adequately with the question.

I am, Sir, yours faithfully,

Kensington, Feb. 3rd, 1919. E. A. BARTON.

THE PRESENCE OF A FILTER-PASSING VIRUS IN INFLUENZA, ETC.

To the Editor of THE LANCET.

SIR,—Dr. Robert Donaldson's several recent letters have raised many interesting questions which, it is to be hoped, will not escape attention. When discussing last year in your columns (May 18th, 1918) those cases then thought to be examples of botulism, and now referred to, in the Viennese style, as encephalitis lethargica, I made some reference to Rosenow's pleomorphous coccus, which had till then almost escaped allusion in this country. The possible identity of this organism with that found by von Wiesner in the Viennese cases was discussed by me with my friend, Dr. L. Rajchman, the author of the Memoir on Influenza, so justly eulogised in your issue of Jan. 4th (p. 25). Shortly afterwards, in the first case of "encephalitis lethargica" that he had the opportunity of investigating, he found, as a denizen of the naso-pharynx, a remarkable organism which, so far as could be determined, was identical, on the one hand, with that found by Rosenow in poliomyelitis, and, on the other, with that found by von Wiesner in "encephalitis lethargica." He found the same organism in other cases of an "influenzal" nature, which at the time we regarded as possibly "abortive" cases of the nervous disease. Further, by strict and peculiar methods of anaerobic cultivation Dr. Rajchman (whose critical acumen and bacteriological skill no one can doubt) produced from his pure cultures of "Rosenow" a free growth of minute bodies which to us appeared not distinguishable from Flexner's "globoid bodies," and which now may be said to resemble those described by the investigators at Etaples.

A little later, when engaged in writing the memoir alluded to, Dr. Rajchman came to the conclusion that phases of Rosenow's coccus, or at any rate of a closely allied organism, had been described by many observers in different countries in relation to the vernal epidemic of influenza. Dr. Rajchman was fully alive to the possibility of relation between the filter-passers and the non-filter-passers, and pointed out to me the interesting bearing of these newer bacteriological developments on the epidemiological conclusions that, following Dr. Hamer's line of thought, I had formulated and was about to express in the Chadwick Lectures. Dr Rajchman left England some months ago; his work was unfinished, and his cultures, I fear, have died out.

Dr. Donaldson knows, I am sure, that these lines are written, not to detract for one moment from the originality and value of his own work, but, on the contrary, to show in what measure his ideas and results are supported by those of others. Truly, there is no *a priori* reason to assume that filter-passing organisms have no other stage or form of existence. The work of Rosenow and others goes some way to prove that the contrary assumption is sometimes true, and that pleomorphism sometimes occurs to a quite unorthodox extent. We allow even a tapeworm the luxury of "alternate

generations"; surely the allegation of pleomorphism, even when carried to extravagance, in the eyes of the old school, need not wholly discredit a coccus, before, at least, the allegation is disproved. Impartial investigation is called for, and it is such investigation that Dr. Donaldson fairly claims for organism "D."

Exclusive reliance on positivist forms of thought and analytical methods of examination will not carry us much further; it is time that more play be given to the synthetic and imaginative faculties, without which, as Darwin said, there is no useful observation.

I am, Sir, yours faithfully,

Harley-street, W., Feb. 15th, 1919. F. G. CROOKSHANK.

THE TREATMENT OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—With respect to the article with this title which appeared in your issue of Feb. 8th under the names of Sir Archdall Reid and myself I desire to make it clear that the prevalence of gonorrhœa amongst those who used nargol jelly as a preventive applied to the period prior to April 1st, 1918. Shortly after this date the issue of nargol jelly was discontinued in the Royal Navy, calomel cream remaining the sole official prophylactic against both syphilis and gonorrhœa.—I am, Sir, yours faithfully,

P. HAMILTON BOYDEN,

Portsmouth, Feb. 17th, 1919. Surgeon Commander, R.N.

INFLUENZA AND CHRONIC LUNG DISEASE.

To the Editor of THE LANCET.

SIR,—Captain D. M. MacRae's letter of Dec. 13th, 1918, which appears in your issue of Feb. 15th, raises a point of great interest. While a greater number of acute cases of recent origin are coming to notice, suggesting that an attack of influenza with complications kindles a latent tuberculous lesion into activity, still, in my experience also, subjects of "open" phthisis have come through the recent epidemics remarkably well. Thus out of an average of 520 "open" cases on the Newcastle-upon-Tyne Dispensary register, only 2 are known to have died from the immediate effects of influenza during the year 1918. So noticeable has this been, and at the same time so unexpected, that I have been led to conjecture that the "mixed infection" of "open" phthisis has resulted in considerable immunity against the strepto- and pneumococci which are responsible for the serious complications which have proved so fatal. It would be interesting to know the experiences of those having large numbers of phthisical individuals under supervision in other areas. I am, Sir, yours faithfully,

W. H. DICKINSON,

Tuberculosis Medical Officer, Newcastle-upon-Tyne.

Feb. 18th, 1919.

"MASS MEETINGS" AND THEIR REPRESENTATIVE CHARACTER.

To the Editor of THE LANCET.

SIR,—In what sense are so-called "mass meetings of the medical profession" really representative of the medical profession? True, we all have the opportunity of reading a general invitation to "The Wigmore Hall" or "No. 1, Wimpole-street." Whatever our views, whatever our inclinations, the majority of us do not get the opportunity of attending. London is a far journey for a host of us. Many cannot in these days afford a week-end in London. Large numbers cannot leave their appointments and practices.

The result is that a few hundred medical men meet together and apparently arrogate to themselves the right to speak for the multitudes that cannot attend. There is a tendency for well-meaning coteries to run such meetings. This is true of most medical societies. Surely there are better means of ascertaining the views of the whole profession and I trust that such means will be adopted in future and save us from mob oratory and mob law and so conduce to medical unity.

I am, Sir, yours faithfully,

Bramcote Sanatorium, Feb. 11th, 1919. PETER W. EDWARDS.

Obituary.

ANDREW MELVILLE PATERSON, M.D. EDIN., F.R.C.S. ENG.,

PROFESSOR OF ANATOMY IN THE UNIVERSITY OF LIVERPOOL AND FORMERLY PRESIDENT OF THE ANATOMICAL SOCIETY OF GREAT BRITAIN.

WE regret to announce the death of Professor Andrew Melville Paterson, professor of anatomy in the University of Liverpool and assistant inspector of military orthopædics, which occurred at his Liverpool home on Feb. 13th, at the age of 56.

Professor Paterson was the son of the late Rev. J. C. Paterson, a well-known Presbyterian minister in Manchester, and was educated in the Grammar School of that city and later at Owens College. He proceeded to the University of Edinburgh and graduated in 1883 with first-class honours as M.B. and C.M., taking three years later the M.D. degree as a gold medalist with a graduation thesis on the "Spinal Nervous System of the Mammalia." He early declared the special bent which his pursuits would take, and was appointed in rapid succession demonstrator of anatomy in the University of Edinburgh, then to the same post in Owens College, to be elected in 1888 first professor of anatomy in University College, Dundee. Here he gained repute alike as teacher and writer, his numerous articles on anatomical subjects showing how much he was in the van of his science, while his "Anatomists' Notebook," his articles in Cunningham's "Text-book of Anatomy," and his "Manual of Embryology" displayed him as an all round master. After nearly seven years' work at Dundee he was appointed professor of anatomy in the newly constituted University of Liverpool, and in the following year, 1895, was appointed Dean of the Medical Faculty of the University, a post which he held for nine years, to the great benefit of his adopted *alma mater*. As might have been expected his services were widely requisitioned as an examiner, and at different times he examined in anatomy at the University of Oxford, Cambridge, Durham, and London, at the English Conjoint Board, and at the qualifying examination for the Indian Medical Service. In 1903 he was one of the Hunterian professors of the Royal College of Surgeons of England, when he took as his subject for his lectures the morphology of the sternum. These lectures were later published in book form.

We have received from Professor William Wright, Dean of the London Hospital Medical College an estimate of Professor Paterson's work and character, written, as he says, by "one who had the privilege and pleasure of intimate friendship." In its fullness and discrimination it leaves little to be added. Professor William Wright says:—

"The outstanding feature to my mind of Paterson's personality was his tireless energy, an energy altogether too kinetic for the somewhat frail body which it animated. He was seldom, if ever, at rest. He thought rapidly, he formed his judgments rapidly, he wrote rapidly whether in rhyme or prose, he sketched rapidly and moved rapidly. These characteristics had their advantages and their disadvantages. He was pre-eminently one who accomplished things, and he has left in the anatomical department of the University of Liverpool a department which is, in my opinion, second to none in equipment, arrangement, and endowment. On the other hand, his haste sometimes made him appear intolerant, but those who were granted the favour of knowing him more intimately appreciated the fact that there was never anything personal in his criticisms or strictures; it was merely that he was consumed with a desire to get things done. No one I have ever known was less willing to compromise, no one was ever less under the sway of what many of us believe to be the really sound Greek maxim—*μηδὲν ἄγαν*

As an anatomist he was most regular in his attendances at the meetings of the Anatomical Society and one of the most frequent contributors to its proceedings. He did not, perhaps, quite fulfil the brilliant promise of his early days, a fact which he was not slow to acknowledge, and which he regretfully explained as due to his having allowed himself to become engrossed in administrative duties and in academic and polemical discussions. Still he has a large number of original, thoughtful, and highly important papers on anatomy to his credit, his contributions to our knowledge of the sternum, the sacrum, and the limb-plexuses being of special value. As an anatomist he formed, too, an interesting link with the past, having served as a demon-

strator to the late Professor Morrison Watson, of Manchester, the earliest occupant, I believe, in the provinces of a chair of human anatomy."

Of Professor Paterson's work in Liverpool, outside the University, it is difficult to speak too highly. At the outbreak of war he was called to the assistance of the War Office; he held a temporary commission in the R.A.M.C and worked at the orthopædic centre at Alder Hay. His military duties as Assistant Inspector of Military Orthopædics under Sir Robert Jones soon became of first-class importance, and were discharged with his wonted thoroughness. He was promoted to a lieutenant-colonelcy and was largely responsible for the organisation of the special orthopædic centres. Indeed, there can be no doubt that the whole-hearted way in which he threw himself into the additional labours entailed upon him by the war, while discharging to a considerable extent the duties of the chair of anatomy in Liverpool, wore out a frame never very robust. Moreover, like too many members of the medical profession, the war exacted from him the most grievous sacrifice of all, for his son was lost in the battle of Jutland.

Professor Paterson's death will be felt by a large circle of sincere friends owing to the generosity which he showed in any cause where his sympathy and interest had been enlisted. He was a man who inspired warm affection which will be lasting.

PROFESSOR BLANCHARD.

Dr. Raphael Blanchard, who succumbed very rapidly to a sudden heart attack on Feb. 8th, was 61 years of age. He had occupied for long the chair of parasitology at the Faculty of Medicine in Paris, and his great reputation in France and abroad was due to his works on medical zoology, and particularly to his researches on the animal carriers of pathogenic germs and their rôle in the propagation of epidemics. The "Traité de Zoologie Médicale," in two volumes, first appeared in 1886-90. At the time of his death he was engaged on the great task of a history of medicine and had made some progress in the publication of a *corpus inscriptionum* devoted to medicine and biology. His diligence was incredible. He was secretary to the Academy of Medicine, he founded the French Society for the History of Medicine, the Colonial Institute of Medicine, and the French Congress of Zoology. For 20 years he acted as general secretary to the Zoological Society of France. Owing to the part which he took at several of the International Congresses of Medicine he became a well-known figure abroad.

DEATH OF HENRY JOHN STRONG, M.D., M.R.C.S.—Dr. H. J. Strong, who died at his house at Worthing on Jan. 29th last, had reached the ripe age of 86. He entered at St. George's Hospital in October, 1850, and after taking the ordinary double qualifications of his day—M.R.C.S. Eng., L.S.A. Lond.—in 1854, he served as house surgeon at the hospital. In 1862 he proceeded to the M.D. degree at St. Andrews University, and began private practice at Stogursey, Somerset. Shortly afterwards he moved to Croydon, where he joined an already existent firm, and where he practised for 30 years, being surgeon to the Croydon Hospital and consulting physician to the Freemasons' Institute, Croydon. In about 1893 he moved to Worthing. He was a J.P. both for Surrey and Sussex.

Mr. T. B. Johnston will begin on March 3rd, at University College, London, a course in Anatomy for the Primary Fellowship Examination, specially suited for R.A.M.C. officers who are entering for the examination in May, 1919, under the special terms arranged by the Royal College of Surgeons. Full particulars of the course can be obtained from the secretary of University College.

The War and After.

WAR EMERGENCY FUND OF THE ROYAL MEDICAL BENEVOLENT FUND.

THE total sum raised for this Fund to date amounts to about £21,000, and it is believed that a further amount of £9000 will be required. At a meeting of the executive committee of the Fund held on Feb. 4th, Lieutenant-Colonel Sir Alfred Pearce Gould in the chair, several applications for assistance were received, and grants amounting to £450 were made. Applications (marked Confidential) should be addressed to the honorary secretary of the Fund at 11, Chandos-street, London, W. 1.

THE CASUALTY LIST.

The names of the following medical officers appear among the casualties announced since our last issue:—

Died.

Col. C. M. Begg, C.B., C.M.G., New Zealand M.C., was a student at University College, London, and qualified in 1903. He was a well-known practitioner in Wellington, New Zealand, and at the time of his death was Deputy Director of Medical Services of the New Zealand Oversea Forces.

Major H. G. Gibson, R.A.M.C., was a student at Guy's Hospital and qualified in 1907. He died in France from pneumonia following influenza.

Lieut. F. P. M. Luett, Austr. A.M.C.

OBITUARY OF THE WAR.

MYRDDIN EMRYS JONES, M.R.C.S. ENG., SURGEON-LIEUTENANT, ROYAL NAVY.

Surgeon-Lieutenant M. E. Jones, who died on service of pneumonia at Granton Naval Hospital, Edinburgh, on Dec. 4th, at the age of 23 years, was second son of Alderman R. E. Jones, of Boderwydd, Llanberis, and brother of Captain E. H. Jones, R.A.M.C., who was repatriated from Germany on Dec. 13th. Educated at Llanberis County School, where he passed the London Matriculation Examination, and at St. Thomas's Hospital, he took the Conjoint Diploma in January, 1918, and obtained a commission as temporary surgeon in the Navy. After serving as house surgeon at St. Thomas's Hospital he was appointed to H.M.S. *Indomitable*.

CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualties among the sons of medical men are reported:—

Lieut. W. M. McGeagh, South Lancs. Regt., died from pneumonia following influenza, youngest son of Dr. R. T. McGeagh, of Liverpool.

Lieut. A. W. Hooley, M.C., A.S.C., attached Queen's, Royal West Surrey Regiment, accidentally killed, only son of Dr. A. Hooley, of Cobham, Surrey.

THE HONOURS LIST.

The following is the continuation of the list the first part of which was given in THE LANCET of Feb. 15th:—

The Military Cross.

Temp. Capt. CHARLES HUMPHREY LLOYD.—For great courage in guiding squads with wounded through Masnieres and the ground south-east of Rumilly on the night of Oct. 1st 2nd, 1918. He dressed a wounded officer in the open during a heavy burst of fire and got him away to safety. On Oct. 3rd he searched for wounded officers under fire, dressed their wounds, and brought them in.

Temp. Capt. GEORGE BARTON McCAUL.—For conspicuous gallantry and devotion to duty. His battalion took up an advanced position of readiness in Jackson's Ravine early on Sept. 19th 1918, and was for several hours exposed to concentrated shell fire. During this period he moved freely about attending to wounded, both of his own battalion and another unit, and showing total disregard for his personal safety. During the entire day his conduct was most exemplary, and he undoubtedly saved many lives.

Capt. ALEXANDER EDWARD MacDONALD, Can. A.M.C.—During the attack on Upton Wood on August 31st/31st, 1918, he worked in the open, under heavy fire, attending to and dressing the wounded, remaining at his duty until all the wounded were cleared, in spite of the heavy shelling. On one occasion a shell fell close to him, killing two men and severely shaking him, but he at once pulled himself together and went on with his work. His gallantry and composure were most marked.

Capt. HERBERT BRUCE MacEWEN, Can. A.M.C.—For conspicuous gallantry and devotion to duty near Monchy from August 26th to 28th, 1918. He kept in close touch with the battalion in the advance, attending to the wounded in the open under heavy shell fire. He worked continuously, mostly in the open, for 36 hours, and was largely responsible for the small percentage of killed in the unit.

Temp. Capt. JAMES TAYLOR ROGERS MacGILL.—For gallantry and devotion to duty on Sept. 19th, 1918. He carried in wounded and dressed them, under intense machine-gun and artillery barrage. Later, on Sugar Loaf, for four hours he helped to carry in wounded after his stretcher-bearers were wounded. His courage and energy were the means of saving many lives.

Temp. Lieut. ROB ROY MacGREGOR.—For conspicuous gallantry and devotion to duty throughout the fighting of Sept. 29th, 1918, south of Villers Guislain. He worked unflinchingly under heavy shell fire, and, though suffering from gas, attended over 200 cases. He had to carry out his work in the open, there being no available shelters.

Capt. JOHN DAVIS MARKS, N.Z. A.M.C.—For conspicuous gallantry during operations near Ruvaulcourt on Sept. 4th/5th, 1918. While his R.A.P. was twice heavily shelled and several casualties occurred he continued at duty, binding men up and shifting them to shelter in spite of the heavy bombardment. Again on Sept. 7th, when the R.A.P. had been established on the edge of Havrincourt Wood, near Quentiet Avenue, the enemy bombarded the place heavily. Under this fire, which had inflicted a number of casualties, he continued with his work. On both occasions his devotion to duty was admirable.

Capt. CHRISTOPHER NORMAN MATHESON, Aust. A.M.C.—In the attack on Mont St. Quentin on Sept. 2nd, 1918, he pushed forward behind the first waves, attending the wounded under heavy artillery and machine gun fire. Later he established a forward post, and through his gallantry and his untiring exertion he saved many lives by getting their wounds expeditiously dressed and evacuating them quickly.

Capt. ARCHIBALD LANG McLEAY, Aust. A.M.C.—For conspicuous gallantry and devotion to duty. During the attack on August 8th, 1918, east of Villers Bretonneux, near Amiens, he followed the attacking troops with his section, tending and dressing wounded under fire on the way. Almost immediately after the objective had been taken he established his R.A.P. in the village of Warfusee, where he worked continuously under great difficulties. Later, during the advance on the following day, he established his R.A.P. almost on the jumping off line, where he tended and cared for wounded under heavy artillery fire. His energy and zeal saved many lives.

Capt. ALEXANDER PATERSON MURPHY, Aust. A.M.C.—For conspicuous gallantry and devotion to duty near Peronne from August 23rd to 26th, 1918, as R.M.O. of a battalion. He placed his aid-post in a railway cutting, where he dressed the wounded of his own and other units under machine-gun and shell fire. When all our wounded had been cleared he went out and attended to the enemy in the open; while doing so a shell burst in their midst, killing his orderly, a stretcher-bearer and several wounded, and wounding him. He continued at work for another 24 hours before reporting for relief.

Capt. EDGAR LLEWELLYN FOOT NASH.—For conspicuous devotion to duty and contempt of danger in caring for wounded under heavy shell fire at Achiet-le Grand on August 23rd, 1918. He moved about in the open under heavy shelling, dressing men's wounds and preparing them for immediate evacuation with the greatest coolness, setting a very fine example to his staff and to the bearers. It was due to his untiring efforts that the wounded were so successfully and quickly evacuated.

Capt. REGINALD EDWARD NOWLAND, Aust. A.M.C.—For conspicuous gallantry and devotion to duty on Sept. 27th, 1918, near Ypres, with the leading battery, which came under heavy shell fire and suffered many casualties. Ignoring all danger, he established an aid-post on the roadside and attended to the wounded. Later in the day, when the batteries moved further forward, he visited all the gun positions and attended to the wounded.

Capt. LAUREL COLE PALMER, Can. A.M.C.—During operations from Sept. 2nd/4th, 1918, near Arras, while in charge of squads evacuating wounded, he kept close up to the advancing infantry, directing the collecting and dressing of casualties. The enemy shelling and machine-gun fire was intense, but time after time he went through the barrage with a total disregard of personal safety. On the night of Sept. 2nd the relay post was heavily shelled with gas, but he kept at his work, protected his wounded, and got them to a place of safety. He showed great courage and devotion to duty.

Temp. Capt. (acting Major) DONOVAN BLAISE PASCALL.—For conspicuous gallantry and devotion to duty during the operations astride the Arras-Cambrai road on Sept. 2nd, 1918. He was in charge of the evacuation of casualties from the front, and repeatedly made journeys over the shell-swept area around Dury and Eterpigny, locating and maintaining touch with R.A.P.'s and bearer posts. Through his disregard of danger the casualties were speedily evacuated.

Capt. (now Major) WILLIAM JAMES ELLERY PHILLIPS, Aust. A.M.C.—For conspicuous gallantry and devotion to duty on Sept. 6th and 7th, 1918, during an advance on Roisel. He worked continuously for 48 hours in charge of the evacuation of the wounded from the forward aid-posts. Although the area was heavily shelled he got his ambulance cars right up and cleared the wounded with great rapidity. His energy and perseverance set a splendid example to those working with him.

Temp. Capt. HARROLD JOHN PICKERING.—For conspicuous gallantry and devotion to duty from Sept. 25th to 30th, 1918, near Cambrai, especially one night, when, hearing that there was a congestion of wounded at a R.A.P., he went forward through heavy shell fire and remained all night, collecting bearers from every available source and supervising the clearing of the post. Throughout the whole period he only had one other officer to assist him in the forward area. He inspired his men with his own cheerfulness, energy, and endurance.

Capt. DAVID TURNBULL RICHARDSON.—For conspicuous gallantry, initiative, and resource, on Oct. 22nd, 1918, when in command of an advanced dressing station, in evacuating casualties under heavy rifle fire. He has shown similar qualities on several previous occasions.

Temp. Capt. (acting Major) GEORGE WILLIAM RIDDEL.—For conspicuous gallantry and devotion to duty during the attack on Gouzeacourt, Sept. 18th, 1918. He went up to the most forward aid-post to organise the collection and evacuation of the wounded. Though dazed early in the action by the explosion of a shell near him, he carried on his duties untiringly through the day and night, often under heavy shell fire. His coolness and disregard of danger inspired confidence in the bearers, and it was largely owing to him that the wounded were cleared so expeditiously.

Capt. WESLEY McCONNELL ROBB, C.A.M.C.—For conspicuous gallantry and devotion to duty on the Scarpe front from August 26th to 29th, 1918. Shortly after zero his advanced dressing station was blown in by shell fire. Though dazed and partly buried, he immediately dug his orderly out. He then followed the battalion in the attack, organising stretcher squads from prisoners, and evacuating serious cases with the least possible delay. He several times attended serious cases in the firing line.

Temp. Capt. HENRY ALBERT RONN.—For conspicuous gallantry and devotion to duty in attending to wounded under heavy shell fire on Oct. 3rd, 1918, near Montbrehain, and on Oct. 9th at Honnechy. On both these occasions he set a fine example under most trying conditions.

Capt. JOHN ROWLAND.—For gallantry and devotion to duty during operations against the Tassel on the night Sept. 17th-18th, 1918. He, although dangerously gassed, remained at duty, and for three whole days worked incessantly rescuing our wounded, often in close proximity to the enemy's positions and under an intense fire. Despite much suffering from the effects of the gas he persisted in his efforts, and by his fine example and personal exertions was the means of saving scores of lives.

Capt. JOSEPH GREGOR SHAW, Can. A.M.C.—During the operations near Dury, Sept. 2nd-6th, 1918, he was in charge of stretcher-bearers. During the whole period he was constantly on duty. On several occasions he reconnoitred areas which were under heavy shell and machine-gun fire, dressing wounded and arranging for their evacuation in the open. In the vicinity of the windmill he came under heavy fire while attending to his duties. His work throughout was admirable, and his coolness in danger was an excellent example to his stretcher squads.

Lieut. JOHN ALEXANDER STEWART.—During the operations astride the Arras-Cambrai road on Sept. 2nd and 3rd, 1918, he displayed conspicuous gallantry and unselfish devotion to duty, attending to the wounded under heavy fire with a disregard of danger that was a splendid example to all.

Temp. Capt. WILLIAM JOSEPH EDWARD STUTTAFORD.—Near Maissemy, Sept. 23rd and 24th, 1918, he organised and superintended the evacuation of wounded under heavy shell fire. His courage inspired confidence among his men, and his initiative and resource saved many lives.

Temp. Capt. ARTHUR MACGREGOR WARWICK.—For conspicuous gallantry and devotion to duty. After an attack on St. Servin's Farm on August 30th, 1918, when he had cleared his aid-post of all casualties, he organised stretcher-bearers and got in without delay a large number of wounded who were lying out in front exposed to heavy shelling. He carried out similar good work the following day.

Capt. (acting Major) FRANK WIGGLESWORTH.—For conspicuous gallantry and devotion to duty on the night of Sept. 11th-12th, 1918, prior to the attack on Havrincourt. Under heavy shell fire he reconnoitred the routes of evacuation and set out his bearer posts. The next morning, during the attack, he supervised the whole of the evacuation of the wounded, and for the next two days he kept well forward, advancing his cars and posts as circumstances allowed, thus evacuating the wounded with the least possible delay. His disregard of danger set a fine example all round.

Capt. ERIC MELVYN WYLLIE, N.Z.A.M.C.—For conspicuous gallantry and devotion to duty south of Cambrai from Oct. 3rd to 8th, 1918. During five days' operations, constantly exposed to enemy fire, he reconnoitred the country for the establishment of bearer relay posts and car-posts. On Oct. 4th, after establishing a car post at Masnieres he went forward under heavy fire and established a bearer relay post on the bank of the canal, afterwards going forward and supervising the evacuation of wounded from R.A. posts.

Capt. HARVEY GORDON YOUNG, D.S.O., Can. A.M.C.—For conspicuous gallantry and devotion to duty during the operations east of Arras from August 26th to 29th, 1918. He was M.O. to the battalion, and throughout the whole operation followed up the attacking troops. Under heavy machine-gun and shell fire he attended to wounded, and organised stretcher squads of prisoners. He worked unceasingly, and it was entirely due to his personal energy and disregard of personal danger that all the wounded were evacuated before relief.

Distinguished Service Cross.

Surg.-Lieut. WALTER GRIMSHAW BIGGER, R.N.—For services with the Royal Marine Artillery Siege Gun Detachment in Flanders. On May 29th, 1918, while he was attending to the wounded in "Carnac" gun position a second shell burst in embrasure. Surg.-Lieut. Bigger continued his work with noteworthy calmness and devotion to duty. The coolness under fire displayed by this officer on other occasions has gained for him the confidence of the officers and men under his medical charge.

The following appointments of medical men to the *Most Excellent Order of the British Empire*, for valuable services rendered in or in connexion with military hospitals, terri-

torial hospitals, war hospitals, auxiliary and civil hospitals, command depôts, convalescent camps, or on other duties of a similar nature in the United Kingdom in connexion with the Army during the war, are announced:—

C.B.E.—Mr. R. Alcock; Mr. A. R. Anderson; Mr. H. G. Frankling; Mr. W. H. C. Greene; Mr. R. G. Hogarth; Mr. R. J. Howard; Dr. W. J. Howarth; Prof. B. May; Dr. W. C. Morton; Dr. F. Nicholson; Dr. A. J. Rice-Oxley; Dr. T. Y. Simpson.

O.B.E.—Mr. R. Y. Aitken; Dr. G. E. Genge-Andrews; Mr. G. J. M. Atkinson; Dr. I. Banks; Dr. R. H. Barter; Mr. W. C. Bentall; Mr. E. J. Blackett; Dr. J. Blomfield; Mr. F. L. H. Brown; Lt.-Col. W. H. Cadge, I.M.S.; Mr. J. Cashin; Mr. J. J. Day; Dr. J. Elliott; Dr. H. B. Elton; Dr. D. Ewart; Dr. F. H. Fairweather; Mr. H. D. Farnell; Dr. E. T. Fison; Dr. J. F. Fleming; Dr. J. V. Fox; Dr. J. D. Giles; Mr. H. J. Godwin; Mr. J. E. Gordon; Dr. B. J. Guillemard; Dr. J. A. Harrison; Mr. J. H. Harvey; Mr. E. D. H. Hawke; Mr. A. W. Hunton; Dr. Mary E. Jeremy; Mr. J. R. Keele; Mr. C. G. B. Kempe; Dr. M. A. Key; Dr. Mary F. Liston; Dr. C. J. R. MacFadden; Dr. J. Macintosh; Dr. A. M. Mitchell; Mr. H. C. Orrin; Dr. R. C. Peacocke; Dr. G. H. Percival; Mr. C. J. Pinching; Mr. A. Y. Pringle; Dr. F. Radcliffe; Dr. B. Rice; Dr. K. Rogers; Dr. Winifred M. Ross; Mr. S. H. Roquette; Dr. L. E. Shore; Dr. E. W. Simmons; Dr. C. D. Somers; Dr. Florence A. Stoney; Dr. J. W. Taylor; Dr. B. B. T. Thorne; Mr. J. W. T. Walker; Dr. A. D. Webster; Mr. C. G. R. Wood; Mr. R. A. Worthington.

FOREIGN DECORATIONS.

French.

Légion d'Honneur.—Croix de Chevalier: Temp. Capt. (acting Lt.-Col.) J. R. C. Greenlees, D.S.O., R.A.M.C.

Médaille des Epidémies (en Vermeil).—Maj. (acting Lt.-Col.) R. B. Ainsworth, D.S.O., R.A.M.C.; Maj. (temp. Lt.-Col.) J. F. Crombie, D.S.O., R.A.M.C.; Capt. F. H. Guppy, R.A.M.C.; Maj. (acting Lt.-Col.) R. M. O'Neill, D.S.O., R.A.M.C.; Temp. Capt. R. McC. Paterson, R.A.M.C.; Capt. (acting Maj.) F. H. C. Watson, R.A.M.C.; Capt. W. T. Wood, R.A.M.C.

Médaille des Epidémies (en Argent).—Maj. A. W. H. A'Court, Aust. A.M.C.; Capt. (acting Lt.-Col.) H. N. Burroughes, R.A.M.C.; Maj. C. L. Chapman, D.S.O., Aust. A.M.C.; Capt. (acting Maj.) S. J. Clegg, R.A.M.C.; Temp. Capt. R. M. Handfield-Jones, M.C., R.A.M.C.; Capt. A. G. Hebblethwaite, D.S.O., R.A.M.C.; Capt. W. H. Hill, R.A.M.C.; Capt. acting Maj.) A. M. Hughes, R.A.M.C.; Temp. Capt. L. R. Lempriere, R.A.M.C.; Capt. J. McL. Macfarlane, M.C., R.A.M.C.; Temp. Capt. O. de B. Marsh, R.A.M.C.; Capt. T. J. Murray, R.A.M.C.; Maj. H. Orr, Can. A.M.C.; Capt. (acting Maj.) J. H. Pendered, M.C., R.A.M.C.; Temp. Capt. A. F. S. Sladden, R.A.M.C.; Temp. Capt. A. B. Stevens, R.A.M.C.; Capt. E. S. Taylor, R.A.M.C.

Portuguese.

Military Order of Avis: Third Class.—Surg.-Lieut.-Comdr. B. Taylor, R.N.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

THE King has approved of the appointment of Field-Marshal His Royal Highness the Duke of Connaught and Strathearn as Colonel-in-Chief of the Royal Army Medical Corps.

Lieut.-Col. and Bt. Col. M. H. G. Fell is seconded for service with the R.A.F.

Lieut.-Col. and Bt. Col. R. H. Moore to be acting Colonel whilst specially employed.

Lieut.-Col. J. C. Connor to be acting Colonel whilst specially employed.

C. J. Bond to be temporary Honorary Colonel whilst specially employed.

Temp. Major J. C. Davies relinquishes the acting rank of Lieutenant-Colonel on re-posting.

Temp. Capt. H. K. Wallace relinquishes the acting rank of Lieutenant-Colonel on re-posting.

To be acting Lieutenant-Colonels whilst in command of a Medical Unit: Majors A. N. Fraser, W. J. Weston, O. Ievers; Capt. G. O. Chambers.

Temp. Capt. J. G. Murray relinquishes the acting rank of Major on re-posting.

To be acting Majors whilst specially employed: Capt. H. V. Stanley; Temp. Capts. J. B. Lester, J. Vallance, J. H. Peek, J. Greene.

Captains to be Majors: Acting Lieut.-Cols. W. K. Beaman, M. P. Leahy, D. F. Mackenzie, W. W. Boyce, J. du P. Langrishe, T. H. Scott, G. F. Rudkin, A. C. Elliott, W. B. Purdon, F. Casement, E. M. Middleton; Brevet-Major H. G. Gibson; Acting Majors A. D. Frazer, J. L. Wood, O. R. MacEwen, M. O. Wilson, L. A. A. Andrews, H. W. Farebrother, C. Cassidy, A. Irvine-Fortescue, F. H. M. Chapman, H. M. J. Perry, F. T. Turner, J. E. M. Boyd, J. H. Gurley, V. T. Carruthers.

Temp. Capt. D. M. Hunter and Capt. W. F. Christie relinquish the acting rank of Major on re-posting.

To be acting Majors: Capts. A. Hendry, H. G. Robertson, J. H. M. Frobisher; Temp. Capts. H. H. Eldot, A. E. Hallinan, D. B. I. Hallett, A. C. Palmer, A. V. Poyser, C. C. Chance, R. W. P. Jackson, H. G. Pesel, C. O. Boxman, H. B. Shepherd, H. H. Hepburn, J. P. Mathie, G. Muir, W. Warnock, H. H. Raw, E. L. Dobson, H. R. Evans, W. S. Martin.

Temp. Capt. Spencer S. Dunn to be Acting Major whilst in command of troops on a Hospital ship.

Temporary Lieutenants to be temporary Captains: J. Cullen, G. V. Allen.

Temp. Hon. Lieut. D. E. Carter to be temporary Honorary Captain.

O. K. Lang to be temporary Lieutenant.

Officers relinquishing their commissions:—The undermentioned on ceasing to serve with No. 6 British Red Cross (Liverpool Merchants' Mobile) Hospital, and retain their honorary rank: Temp. Hon. Lieut.-Col. N. Raw; Temp. Hon. Major F. A. G. Jeans; Temp. Hon. Capts. J. Hayward, S. Raw, H. W. Jones, F. C. Wilkinson. Retaining the rank of Major; Temp. Major E. L. Gowland, A. Goodale; Temp. Capts. (acting Majors) C. S. Frew, C. A. H. Gee, W. S. Danks, E. G. C. Price, H. B. Atlee, B. F. Bartlett; Temp. Major W. B. Edwards (on appointment under the Ministry of National Service and granted the rank of Lieutenant-Colonel); Temp. Capt. (acting Major) G. V. T. McMichael (retains the rank of Major).

Temp. Hon. Majors, on ceasing to be employed with No. 2 Red Cross Hospital, retain the honorary rank of Major: L. J. Austin, B. Hudson.

Temp. Capt. A. S. Glynn on transfer to R.A.F.

Temp. Capts. (and retain the rank of Captain): C. J. Todd, A. Leeming, B. L. Clift, W. Lilico, F. B. O'Dowd, W. C. Frogoso, P. Stewart, F. G. Ralphs, L. E. C. Handson, W. C. Gore, T. Lovett, G. O. Hutchinson, A. C. Rowswell, A. Ball, R. W. L. Fernandes, I. G. Cobb, R. Dane, F. H. Dodd, W. R. Meredith, F. Thompson, T. Stansfield, T. J. Little; Temp. Hon. Capt. R. A. Chisholm (on ceasing to be employed with No. 8 British Red Cross (Baltic and Corn Exchange) Hospital, and retains the honorary rank of Captain); Temp. Lieuts. W. Wright and D. A. Johnstone.

Canadian Army Medical Corps.

Temporary Majors to be acting Lieutenant-Colonels: G. Musson (while employed as Chief of the Medical Service at a Canadian General Hospital), G. H. R. Gibson, D.S.O. (while employed as O.C. a Canadian Convalescent Hospital).

Captains to be acting Majors while employed at No. 12 Canadian General Hospital: K. A. MacKenzie, F. B. McIntosh.

South African Medical Corps.

The undermentioned relinquish their commissions on ceasing to be employed with the Union Imperial Service: Temp. Lt.-Col. G. K. Moberley, and retains the rank of Lieutenant-Colonel; Temp. Major G. D. Maynard, and retains the rank of Major.

And retain the rank of Captain: Temp. Capts. I. Haslam, W. D. Akers, J. A. Martin, A. J. Milne, A. McWatt Green, J. J. Commerell, E. L. Galgut.

To be temporary Captains: T. J. Howell, C. C. Murray, T. G. Burnett, A. J. Milne.

Dental Surgeons: H. B. Osler, M. de Villiers.

Temp. Lieut. N. E. Thomson relinquishes his commission and retains the rank of Lieutenant.

SPECIAL RESERVE OF OFFICERS.

Captains to be acting Majors: H. W. H. Holmes, P. Walsh, G. Young, C. H. Brennan, R. R. G. Atkins, A. R. Dale, J. R. Crolins, H. R. Friedlander, E. H. Bradley, H. H. Brown, W. S. Haydock, H. T. Chatfield, W. B. Wood, M. J. B. F. Burke-Kennedy.

Capt. (acting Lieut.-Col.) W. H. L. McCarthy relinquishes his commission and retains the rank of Lieutenant-Colonel.

Capt. G. R. Bruce relinquishes the temporary rank of Major on ceasing to be specially employed.

Capts. C. J. Orde, E. Talbot, C. Johnson, W. C. C. Easton, and B. Mountain relinquish their commissions and retain the rank of Captain.

Capt. M. R. Taylor relinquishes the acting rank of Lieutenant-Colonel and reverts to the acting rank of Major.

Captains relinquishing the acting rank of Major on re-posting: A. R. Dale, D. Mackie, W. A. Miller, J. Walker, J. Adams.

Lieut. J. R. Dingley relinquishes his commission on account of ill-health and retains his rank.

Lieutenants to be Captains: W. A. Fraser, M. O. Simpson, J. F. Twort, W. M. Kerr, W. H. Wallace, A. H. Morris, D. F. Panton, T. G. James, W. G. F. Owen-Morris.

Lieut. N. B. Thomas relinquishes his commission and retains his rank.

TERRITORIAL FORCE.

Lieut.-Col. F. W. Higgs to be an Assistant Director of Medical Services, and to be acting Colonel whilst so employed.

Major A. J. Riddett to be acting Lieutenant-Colonel whilst specially employed.

Major H. D'A. Blumberg relinquishes his commission and retains his rank.

Capts. C. Nyhan and J. C. S. Dunn to be acting Majors whilst specially employed.

Capts. (acting Majors) A. A. Hingston and T. S. P. Parkinson relinquish their acting rank on ceasing to be specially employed.

Captains to be acting Majors whilst specially employed: E. J. Boome, R. J. Chapman, J. A. Bell, M.C.

Capt. W. S. McCune relinquishes his commission and retains the rank of Captain.

Capt. L. T. Whelan to be a Deputy Assistant Director of Medical Services, and to be acting Major whilst so employed.

Capt. (acting Major) O. L. Appleton to be Major.

Capt. A. E. Barnes, from 3rd Northern General Hospital, to be Captain.

1st Eastern General Hospital; Major (acting Lieut.-Col.) H. A. Ballance relinquishes his acting rank and is restored to the establishment. Capt. (acting Major) W. B. Marshall relinquishes his acting rank on ceasing to be specially employed.

3rd Scottish General Hospital: Capt. A. W. Harrington is restored to the establishment.

5th Southern General Hospital: Capt. (acting Major) P. H. Green relinquishes his acting rank on ceasing to be specially employed, and remains seconded.

2nd Eastern General Hospital: Capt. W. B. Prowse relinquishes his commission, and retains the rank of Captain.

2nd Western General Hospital: Major (acting Lieut.-Col.) E. N. Cunliffe relinquishes his acting rank on ceasing to be specially employed. Major A. Wilson to be acting Lieutenant-Colonel whilst specially employed. Major A. H. Griffith relinquishes his commission and retains his rank. Capt. G. Wright is restored to the establishment.

1st Southern General Hospital: Capt. J. W. Stretton is seconded for service overseas.

1st London Sanitary Company: Capt. W. N. W. Kennedy to be acting Major whilst holding appointment as Deputy Assistant Director of Medical Services. Lieut. F. G. Caesar to be Captain.

2nd London Sanitary Company: Capt. W. K. Pasbury to be acting Major while specially employed. Capt. (acting Major) J. H. Wood

relinquishes his acting rank on vacating his appointment of Deputy Assistant Director of Medical Services.

3rd Southern General Hospital: Major (temp. Lieut.-Col.) A. P. Dodds Parker relinquishes his temporary rank.

4th Northern General Hospital: Capt. H. B. W. Smith is restored to the establishment.

Attached to Units other than Medical Units.—Surg.-Major H. Waite, from the Northern Command Signal Company, to be Major.

TERRITORIAL FORCE RESERVE.

Major J. M. Gover, from 1st Northern Field Amb., to be Major.
Capt. H. C Adams, from 2nd Wessex Field Amb., to be Captain.
Capt. C. S. Brebner, from 1st London Field Amb., to be Captain.
Capt. W. R. Pierce, from 2nd West Lancs. Field Ambulance, to be Captain.
Capt J. H. Hunter, from 3rd Highland Field Amb., to be Captain.
Capt. N Gebbie, from 2nd London Sanitary Company, to be Captain.
Capt. W. A Robertson, from Attached to Units other than Medical Units, to be Captain.
Capt. W. Sneddon, from 3rd West Riding Field Amb., to be Captain.
Lieut. T. W. Emerson relinquishes his commission on ceasing to be employed, and retains the rank of Lieutenant.
Lieut. A. G. Jennings to be temporary Captain whilst Commandant, Prisoner of War Camp.

ROYAL AIR FORCE.

Medical Branch.—Major A. V. J. Richardson to be acting Lieutenant-Colonel whilst employed as Lieutenant-Colonel.
A. S. Glynn (temporary Captain, R.A.M.C.) is granted a temporary commission as Captain.
G. McK. Thomas is granted a temporary commission as Lieutenant.
Capt. A. E. McCulloch is transferred to Unemployed List.
Capt. L. G. Davies relinquishes his commission on account of ill-health, and is permitted to retain his rank.
The undermentioned are granted temporary commissions as Lieutenants:—T. E. Roberts, R. D. Jones.
Medical (Administrative).—L. W. Jones is granted a temporary commission as Second Lieutenant, and to be acting Captain whilst specially employed.
Dental Branch.—Lieut. H. Wardill to be Lieutenant, from (A.).

Medical News.

UNIVERSITY OF BRISTOL.—At examinations held recently the following candidates were successful:—

FINAL EXAMINATION FOR THE DEGREES OF M.B., CH.B.

Part II. (completing examination).—Alan Gabriel Bodman, Elizabeth Casson, Evelyn Bessie Salter, Arthur Denis Symons, and Reginald Frank White.

Part I. only.—Sukhasagar Datta, and Thomas Henry Algernon Pinniger.

EXAMINATION FOR THE DIPLOMA IN PUBLIC HEALTH.

John Wesley Gilbert.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—*Meeting of Council.*—An ordinary meeting of the Council was held on Feb. 13th, Sir George Makins, the President, being in the chair.—It was resolved (1) that Diplomas of Membership should be granted to 62 successful candidates; (2) that, in conjunction with the Royal College of Physicians, Diplomas in Public Health should be granted to seven successful candidates; (3) that a donation of 50 guineas should be made to the War Emergency Fund of the Royal Medical Benevolent Fund.—Dr. W. S. A. Griffith was re-appointed the representative of the College on the Central Midwives Board for the period of one year from March 31st, 1919, and he was thanked for his services on the Board during the past year.—Mr. G. Bellingham Smith was reappointed for four years the representative of the College on the managing committee of the British Hospital for Mothers and Babies, Woolwich.—The President reported that Lieutenant-Colonel T. B. Layton, who was to have given an Hunterian lecture on Feb. 10th, had been unable to obtain leave of absence to proceed to England from Alexandria, where he was stationed, and that accordingly it had been necessary to postpone his lecture, for which it was hoped a date might be arranged later in the year.—The President reported (1) that in pursuance of the provisions of the Bradshaw Bequest he had appointed Sir Charles Ballance as Bradshaw lecturer for the ensuing year; (2) that, as requested by the Council at their last meeting, he had addressed a letter to the Home Secretary urging that in any legislation relating to the public health provision should be made for ensuring an adequate supply of material for the anatomical and surgical instruction of students and practitioners of medicine; (3) that the committee on the special examination for the Fellowship had drawn up the regulations. These have already appeared in THE LANCET, but they were modified in that the examination will be open to surgeons (men or women) who have done commendable work in connexion with His Majesty's Forces during the war, provided that the other conditions are fulfilled.—A letter was read from the Council of the Medico-Psychological Association of Great Britain and Ireland enclosing a copy of a report by the Association on Lunacy Legislation and expressing the hope that it would receive the careful consideration of the College. The matter was referred to a committee.—The President reported that a meeting of the Fellows would be held at the College on Thursday, July 3rd next, for the election of two Fellows into the Council in the vacancies occasioned by the retirement in rotation of Sir Berkeley G. A. Moynihan and by the death of Mr. L. A. Dunn, and the Secretary stated that March 17th would be the last day for the nomination of candidates and that a voting paper would be sent on April 1st to every Fellow of the College whose address is registered at the College.

Diplomas of M.R.C.S. were conferred upon 62 candidates (4 women) who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Examining Board, and complied with the by-laws. The names and schools of the successful candidates are included in the list given in THE LANCET of Feb. 8th (p. 239) of candidates granted the licence to practise physic by the Royal College of Physicians of London.—The Diploma of F.R.C.S. was conferred upon Frank Beauchamp Martin, M.B., B.S. Melb., Melbourne University and St. Bartholomew's Hospital, who passed the necessary examinations in 1914, and has now complied with the by-laws of the College.

The Hunterian Oration was delivered at the College on Friday last, Feb. 14th, by Major-General Sir Anthony Bowlby (see p. 285), and in the evening of the same day the Hunterian Festival Dinner was held, the President presiding.

Dr. J. Charlton Briscoe will deliver an Arris and Gale lecture on the Mechanism of Post-operative Massive Collapse of the Lungs, at the Royal College of Surgeons of England on Monday, Feb. 24th, at 5 P.M.

MATERNITY AND CHILD WELFARE IN SOUTHWARK.—A conference will be held in the Town-hall, Walworth, on Tuesday, Feb. 25th, at 5.30 P.M., to consider closer coöperation between all who are interested in the maternity and child welfare of the borough.

HOOKWORM DISEASE IN BENGAL.—The Governor of Bengal, in a letter to the Sanitary Board, invites attention to the importance of adopting measures for the extermination or lessening of hookworm disease in the province. He estimates the percentage of the population infected by the disease as 80 per cent., giving a total of some 35 million carriers. The disease, which even in mild cases is responsible for inertia and lowered vitality, can, the Governor states, be cured cheaply and effectively, but can be prevented only by ridding the infected soil of the virus of the disease. The latter can only be achieved by wide diffusion of knowledge regarding the nature and cause of the condition, followed by a revolutionary change in the hygienic habits of the population.

AMERICAN GIFTS.—A quantity of valuable hospital stores and comforts supplied by the American Red Cross for the use of Americans treated in the U.S. Base Hospital at Portsmouth has been given to the Mayor of Portsmouth on behalf of the town, for distribution amongst the local hospitals, in appreciation of the kind reception of the Americans in Portsmouth. Much constructional work was undertaken by the Americans, involving the purchase of building and other materials, to adapt the Portsmouth Asylum for the purposes of a hospital. The whole of this has been handed over to the Asylum Committee as compensation for any dilapidations or alterations that will need to be carried out to restore the building to its original use.

THE MEDICO-POLITICAL UNION.—In view of "the crisis in the medical profession," the Council of the Medico-Political Union is convening a mass meeting of the medical profession at Wigmore Hall, Wigmore-street, London, W., on Sunday next, Feb. 23rd, at 3.30 P.M. The President, Mr. Frank Coke, will preside, and the following resolution will be proposed:—

That in view of the far-reaching changes inevitable in the medical services of this country consequent on the coming Ministry of Health, it is essential that the profession should be solidly and democratically organised on a trade union basis to enable it to negotiate effectively with the Government in the interests of the community no less than those of the profession.

ST. MARK'S HOSPITAL: THE LORD MAYOR'S CHALLENGE.—The Lord Mayor of London, presiding at the annual general meeting of the governors of St. Mark's Hospital, City-road, on Feb. 13th, referring to the £800 still required to acquire the vacant building site adjoining the hospital, said he would be very glad to give £50 if the balance could be raised by March 13th. The report showed that beside the ordinary patients a number of wounded soldiers had been treated during the past year—many of them straight from France with injuries to the abdomen which had necessitated their being kept under treatment for very long periods—some for over eight months. But all those patients, except one, had been discharged fit for duty. The War Office was very pleased with the results. The Ministry of Pensions was arranging to send other patients. During the year 1918 the total number of new out-patients was 1479. The number of in-patients admitted during the same period was 705.

THE MEDICAL WORK OF THE MINISTRY OF NATIONAL SERVICE.

THE medical side of the Ministry of National Service will be transferred to the Ministry of Pensions, and arrangements are now in progress to effect the transfer. The medical and secretarial staffs affected are at the headquarters of the Ministry of National Service and at the offices of regions and areas of the Ministry, and will continue to carry out their duties as at present under that Service, but will receive due notice of the arrangements for transfer. The only officers not affected by the transfer are the Chief Commissioner of Medical Services and the Branch (M4) dealing with demobilisation of medical and dental officers on service with the armed forces of the Crown. These will remain as at present in the Ministry of National Service.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The New Parliamentary Session.

BOTH Houses of Parliament have now voted the Address in reply to the Speech from the Throne. The House of Commons is in the first place devoting itself to a revision of the Rules of Procedure so as to expedite the course of Parliamentary business. Some of the Government Bills which are deemed urgent will not be long in being presented.

Ministry of Health Bill.

Dr. ADDISON (President of the Local Government Board) on Monday, Feb. 17th, presented a Bill in the House of Commons "to establish a Ministry of Health and a Board of Health to exercise in England and Wales and in Scotland respectively powers with respect to health and local government and for purposes connected therewith." It was read a first time.

Text of Bill.

The Bill has been published and the following are its principal clauses:—

Clause 1 (Establishment of Minister):—

For the purpose of promoting the health of the people throughout England and Wales, and for the purpose of the exercise of the powers transferred or conferred by this Act, it shall be lawful for His Majesty to appoint a Minister of Health (hereinafter called "the Minister"), who shall hold office during His Majesty's pleasure.

Clause 2 (General powers and duties of Minister in relation to health):—

It shall be the duty of the Minister to take all such steps as may be desirable to secure the effective carrying out and coördination of measures conducive to the health of the people, including measures for the prevention and cure of diseases, the treatment of physical and mental defects, the collection and preparation of information and statistics relating thereto, and the training of persons engaged in health services.

Clause 3 (Transfer of powers):—

(1) There shall be transferred to the Minister: (*a*) all the powers and duties of the Local Government Board; (*b*) all the powers and duties of the Insurance Commissioners and the Welsh Insurance Commissioners; (*c*) all the powers of the Board of Education with respect to attending to the health of expectant mothers and nursing mothers and of children who have not attained the age of five years and are not in attendance at schools recognised by the Board of Education; (*d*) all the powers of the Privy Council and of the Lord President of the Council under the Midwives Acts, 1902 and 1918; (*e*) such powers of supervising the administration of Part I. of the Children Act, 1908, (which relates to infant life protection), as have heretofore been exercised by the Secretary of State: Provided that (i.) the power conferred on the Insurance Commissioners by the proviso to Subsection (2) of Section 16 of the National Insurance Act, 1911, of retaining and applying for the purposes of research such sums as are therein mentioned shall not be transferred to the Minister, but the duties heretofore performed by the Medical Research Committee shall after the date of the commencement of this Act be carried on by or under the direction of a Committee of the Privy Council appointed by His Majesty for that purpose, and any property held for the purposes of the former Committee shall after that date be transferred to and vested in such persons as the body by whom such duties as aforesaid are carried on may appoint, and be held by them for the purposes of that body; and (ii.) in such matters of a judicial nature under the National Insurance (Health) Acts, 1911 to 1918, as may be prescribed under those Acts, the powers and duties of the Insurance Commissioners and the Welsh Insurance Commissioners by this Act transferred to the Minister shall be exercised by the Minister through a special body or special bodies of persons constituted in such manner as may be so prescribed.

(2) It shall be lawful for His Majesty from time to time by Order in Council to transfer to the Minister—(*a*) all or any of the powers and duties of the Board of Education with respect to the medical inspection and treatment of children and young persons; (*b*) all or any of the powers and duties of the Minister of Pensions with respect to the health of disabled officers and men after they have left the service; (*c*) all or any of the powers and duties of the Secretary of State under the Lunacy Acts, 1890 to 1911, and the Mental Deficiency Act, 1913; (*d*) any other powers and duties in England and Wales of any Government department which appear to His Majesty to relate to matters affecting or incidental to the health of the people.

(3) It shall be lawful for His Majesty from time to time by Order in Council to transfer from the Minister to any other Government department any of the powers and duties of the Minister relating to the matters specified in the First Schedule to this Act, and any other powers and duties of the Minister which appear to His Majesty not to relate to matters affecting or incidental to the health of the people. And it is hereby declared that it is the intention of this Act that, in the event of provision being made by Act of Parliament passed in the present or in any future session for the revision of the law relating to the relief of the poor and the distribution amongst other authorities of the powers exercisable by boards of guardians, there shall be transferred from the Minister to other Government departments such of the powers and duties under the enactments relating to the relief of the poor then vested in the Minister (not being powers or duties relating or incidental to the health of the people) as appear to His Majesty to be such as could be more conveniently exercised and performed by such other departments.

(4) His Majesty may by Order in Council make such incidental, consequential, and supplemental provisions as may be necessary or expedient for the purpose of giving full effect to any transfer of powers or duties by or under this section, and may make such adaptations in the enactments relating to such powers or duties as may be necessary to make exercisable by the Minister and his officers or by such other Government department and their officers, as the case may be, the powers and duties so transferred.

(5) In connection with the transfer of powers and duties to or from the Minister by or under this Act, the provisions set out in the Second Schedule to this Act shall have effect.

Clause 4 (Consultative Councils):—

(1) It shall be lawful for His Majesty by Order in Council to establish consultative councils for giving, in accordance with the provisions of the Order, advice and assistance in connection with such matters affecting or incidental to the health of the people as may be referred to in such Order. (2) Every such council shall include persons of both sexes, and shall consist of persons having practical experience of the matters referred to the council.

Clause 5 (Provisions as to Wales):—

The Minister may establish an office in such town in Wales as he may determine, for the exercise and performance in Wales, through such officers as the Minister may appoint for the purpose, of any of the powers or duties transferred to the Minister by this Act from the Welsh Insurance Commissioners.

Clauses 6, 7, and 8 provide, respectively, for the staff and remuneration of the Minister and the officials of the department; for the official style of the Minister; and for the regulations as to Orders in Council. The Minister will receive £5000 per annum, and in the expenses of the Ministry provision is made for the payment of Consultative Councils.

Clause 9 (Application to Scotland):—

This Act shall apply to Scotland, subject to the following modifications:—(1) Section 1 of this Act shall apply to Scotland as it applies to England and Wales, with the substitution of a Scottish Board of Health (the einafter referred to as "the Board") for the Minister; and accordingly references in this Act to England and Wales shall be construed as references to Scotland, and references to the Minister or the Ministry shall, so far as applicable, be construed as references to the Board. (2) The Secretary for Scotland shall be substituted for the Secretary of State, and the Local Government Board for Scotland and the Scottish Insurance Commissioners shall respectively be substituted for the Local Government Board and the Insurance Commissioners, and in Subsection (2) of Section 3 the Scottish Education Department shall be substituted for the Board of Education. (3) The Board shall, as at first constituted, consist of the existing members of the Local Government Board for Scotland and of such of the Scottish Insurance Commissioners as the Secretary for Scotland shall appoint, and shall at all times comprise, in addition to the persons who by virtue of their office are under the existing law members of the Local Government Board for Scotland, a member of the Faculty of Advocates of not less than seven years' standing, and a registered medical practitioner who is also registered on the Medical Register as the holder of a diploma in sanitary science, public health, or State medicine, under Section 21 of the Medical Act, 1886. The number of members (other than *ex officio* members) shall at no time exceed six, and subject as aforesaid the power of appointing such members shall be exercisable by His Majesty on the recommendation of the Secretary for Scotland. The Secretary for Scotland shall be President of the Board, and such member thereof as the Secretary for Scotland, with the approval of His Majesty, may designate shall be Vice-President, and be Chairman of the Board in the absence of the President. *The Vice-President and other members of the Board (not being members ex officio) shall receive such salary or remuneration as the Treasury may from time to time determine:* Provided that persons qualified to be in the first instance appointed members of the Board shall, whether so appointed or not, have the like right of transfer as, and upon such transfer shall be deemed to be, persons transferred and attached to the Board in pursuance of this Act. (4) The Midwives (Scotland) Act, 1915, shall be substituted for the Midwives Acts, 1902 and 1918, and the *Edinburgh Gazette* for the *London Gazette*. References to the Welsh Insurance Commissioners shall not apply. (5) Section 12 of the New Ministers and Secretaries Act, 1916, shall not apply, but a Parliamentary Under Secretary may be appointed by the Secretary for Scotland, *and there shall be paid to any Under Secretary so appointed such remuneration as may be fixed by the Treasury.* The office of an Under Secretary so appointed shall not render the holder thereof incapable of being elected to, or sitting or voting as a Member of, the Commons House of Parliament.

Clause 10 deals with consequential modifications of the Insurance Act. The other clauses in the main deal with details of machinery.

HOUSE OF COMMONS.

Medicine in the House of Commons.

Sir Watson Cheyne has been appointed chairman of the newly formed House of Commons Medical Committee, which consists of Members who possess a medical or surgical degree, or who are interested in medical or scientific matters. The committee will exchange views upon all proposed legislation which has relationship to any medical or allied question. The deliberations will be aimed to avoid the expression of conflicting medical or scientific opinions in Parliamentary debate by arriving at a common view where possible. The Committee will also invite reports from, and hold conferences with, medical and scientific bodies. Major A. C. Farquharson is secretary to the Committee, and Sir William Whitla, Lieutenant-Colonel N. Raw, and Captain W. E. Elliott form the executive committee. It was decided that the Committee should take an early opportunity of meeting Dr. ADDISON on various matters of medical interest.

THURSDAY, FEB. 13TH.

Artificial Limbs.

Answering Mr. PENNEFATHER, Sir J. CRAIG (Parliamentary Secretary to the Ministry of Pensions) said: The Pensions Minister is examining the problem of artificial limb supply in all its bearings, and has appointed a committee to consider and report upon the following matters—namely, (1) whether, and in what respects, the existing arrangements with regard to supply, fitting, repair, and refitting should be modified; (2) whether it is desirable that the Ministry should provide one or more institutions for the supply and repair of limbs and should employ therein partially disabled or limbless men: and (3) whether the existing arrangements for the supply of surgical instruments are satisfactory and, if not, how they can be improved. The members of this committee will be Mr. Herbert Guedalla, chairman, and the honourable and gallant Members for the Reigate Division of Surrey (Brigadier-General G. H. Cockerill) and for Nelson and Colne (Captain Albert Smith), who have kindly consented to act together with Sir Charles Henderdine, K.B.E., and a Reading surgeon.

In reply to a further question by Mr. PENNEFATHER, Sir J. CRAIG said: The number of men whose stumps are healed awaiting the fitting of artificial limbs on Feb. 1st was 2832, and the number of men whose stumps are not sufficiently healed for the fitting to take place is 5321. Arrangements for the repair of artificial limbs are now made by the local committees. From the returns available the arrangements appear to be working well, and I do not know of any arrears. There has not yet been any general provision of spare limbs. The promise made by the late Pensions Minister was that the provision of spare limbs would be undertaken when the arrears in the supply of first limbs had been worked off. In urgent cases, however, such as those of men going abroad or men in special need because of their particular occupations, spare limbs have already been provided. The whole question is being carefully considered.

Colonel YATE: Are these limbs supplied to officers?—Sir J. CRAIG: Yes, Sir.

After-care of Tuberculous Ex-Service Men.

Mr. PENNEFATHER asked the Parliamentary Secretary to the Ministry of Pensions whether the Treasury had sanctioned a yearly expenditure for the after-care of tuberculous ex-service men, and would he state the date and the amount so sanctioned, and also how many appointments had been made in connexion with this matter; and whether any scheme had yet been formulated for this purpose.—Sir J. CRAIG answered: Sanction for the yearly expenditure of £20,000 was given in May last, and thereupon a scheme for the domiciliary visiting of tuberculous ex-service men was drawn up and considered in consultation between the departments concerned—namely, the Ministry of Pensions, the Local Government Board, and the National Health Insurance Commission. On Dec. 4th last, the Local Government Board issued to the local authorities an explanatory circular. I am unable to say how many appointments have been made by the local authorities. Special appointments would not be necessary in all areas, as the scheme is an extension of the arrangements which in many districts were already in existence.

Ministry of Health.

Mr. G. LOCKER-LAMPSON asked the Leader of the House when the Government proposed to appoint a Minister of Health.—Mr. BONAR LAW replied: It is the intention of the Government to proceed with a Bill setting up a Ministry of Health at the earliest possible date.

Mr. G. LOCKER-LAMPSON: Pending the appointment of a Minister of Health, who will advise the Government in regard to the health side of housing?—Mr. BONAR LAW: That will be done in the meantime by the Local Government Board, I presume.

Missing Officers and Men.

Mr. CHURCHILL (Secretary for War), in the course of a reply to Mr. JOYNSON-HICKS, stated that there were still about 64,800 officers and men reported "missing" whose fate remained to be determined. As a preliminary step to recover from Germany all who might still be detained there on account of illness or any other cause after the great majority of the British prisoners of war had been repatriated, medical units fully staffed and equipped were sent into each army corps district in the country with orders to search every camp, prison, mine, asylum, hospital, or anywhere else, with a view to gathering in all that might be found, both sick and well. The former were concentrated in central hospitals in each army corps district and moved from there by hospital train. Other Allied powers undertook the same service and each collected all of every Allied nationality. The German authorities called for a complete roll of all Allied prisoners still in the country on Jan. 25th, and issued a proclamation threatening heavy penalties against any who did not bring those of whom they knew to notice. A list of those who were known to have been prisoners of war and have not yet been repatriated, or whose death had not been officially reported, was in course of preparation. It would be presented to the German Government with the demand that they should account for every one of them. A central inquiry office under British supervision would shortly be established at Frankfort, from which inquiries regarding any who might still be in Germany would be prosecuted.

FRIDAY, FEB. 14TH.

Tuberculous Ex-Service Men.

Mr. HOGGE, in moving an amendment to the address on the subject of pensions administration, mentioned that there were no fewer than 50,000 discharged men who were suffering from tuberculosis and only a small proportion of them were receiving the attention to which they were entitled.

Lieutenant-Colonel RAW said that a very large number of the men in question had contracted tuberculosis owing to the rigours of active service. Tuberculosis if dealt with in its early stages was curable. A few months in a sanatorium was not sufficient to cure tuberculosis, and some more adequate scheme was required to treat the disease with success. A long and expensive treatment was necessary, and he appealed to the Government earnestly to appoint a Select Committee, which would deal with tuberculosis alone as it affected men discharged from the services. He urged also that arrangements should be made for an immediate and adequate form of treatment. While there was delay the men were dying. The arrangements, which ought to include established colonies and open-air treatment, should be under the direct control of the Government. The men were now being passed on to the local authorities. He hoped that the Government would fully recognise its responsibility for men who had contracted and developed tuberculosis while in the service of the country.

Sir H. KINGSLEY WOOD complained of the delay in London in admitting to sanatoriums discharged men suffering from tuberculosis. To obtain benefit a patient must be under treatment for 12 months, yet during the past few months no fewer than 339 men discharged themselves from sanatoriums in London after one month's treatment, 467 after two months, 258 within three months, and 105 after four months. In fact, only 20 discharged soldiers in London last year stayed in a sanatorium of their own free will for more than six months. He had come to the conclusion that there was need of more humane and sympathetic treatment in the sanatoriums.

Sir J. CRAIG (Parliamentary Secretary to the Ministry of Pensions), in the course of his reply, said that steps had been taken to improve the treatment of cases of tuberculosis. The man was given priority over any other case of tuberculosis requiring treatment. Most of the cost of treatment was paid and the accommodation in the institutions was increased. Improvements had been made in the after-care and home treatment. Extended treatment had been given in early cases and graduated employment found in agriculture or other suitable industries. He went on to mention that Colonel Webb had been appointed Director-General of Medical Service at the Ministry of Pensions, and he would carry on the treatment required by disabled soldiers and sailors after they had left hospital. The Ministry had taken over the National Service Medical Board and had set up a strong committee to increase the supply, fitting, and repair of artificial limbs and surgical appliances.

Mr. HOGGE withdrew his amendment.

MONDAY, FEB. 17TH.

Irish Housing.

Answering Mr. LYNN, Mr. BONAR LAW (Leader of the House stated that housing proposals on similar lines to those contained in the English Bill were at the present moment under the consideration of the Government for Ireland.

Ireland and the Ministry of Health.

Mr. LYNN asked the Leader of the House whether the Ministry of Health Bill would apply to Ireland.—Major ASTOR (who replied) said: The answer is in the negative.

Artificial Limbs.

Answering Mr. PENNEFATHER, Sir J. CRAIG said: The rate of progress in the fitting of artificial limbs is governed by the limits of accommodation in the fitting hospitals and of the output of limbs by the limb-makers. The number of men on the waiting list is large, but actually it represents what is now a normal two months' work for the fitting hospitals.

War Bonus to Panel Practitioners.

Sir KINGSLEY WOOD asked the representative of the National Insurance Commissioners whether the National Insurance Commissioners proposed to pay a war bonus to panel doctors; if so, under what statutory authority and from which fund was such payment being made; whether such payment was being made upon the basis of the number of insured persons upon a doctor's list or otherwise; and what was the maximum amount, if any, payable to any doctor, and the estimate of the total cost of such bonuses.—Mr. PRATT replied: Early in last year the Chancellor of the Exchequer received a deputation of insurance practitioners, and in reply to their representations promised them a supplementary remuneration in respect of the increased cost of living and practice expenses in certain cases, the details of which are set out in a memorandum of which I am sending the honourable Member a copy, as they are too long for convenient exposition in an oral reply. The total cost cannot be accurately estimated until all the applications have been dealt with, but it is not expected to exceed £250,000. It will be paid under the statutory authority of the Appropriation Act from Exchequer moneys voted by Parliament for the purpose of supplementing the Exchequer moneys approximating to some £2,000,000 annually expended on medical remuneration apart from the funds derived from insurance contributions.

Maternity and Child Welfare.

Major ASTOR (Parliamentary Secretary to the Local Government Board), in reply to Mr. T. GRIFFITHS, said: Local authorities representing 98·25 per cent. of the population of England and Wales are now carrying out schemes for maternity and child welfare. On the 1st inst. 3038 women were employed as health visitors, and 1365 maternity and child-welfare centres had been established, and a number of other services recommended in the Local Government Board's circulars are being undertaken for the physical welfare of mothers and young children. This work is done chiefly by local authorities, but also by voluntary agencies working with the local authorities, all the metropolitan agencies working with the local authorities. All the metropolitan and county boroughs and 59 out of the 61 county councils outside London have taken action entitling them to the grant. The county schemes cover most of the districts in the county areas which have not adopted separate schemes, but there are still 68 districts representing 1·75 per cent. of the population for which action has not yet been taken. It is hoped that these will shortly be covered by the extension of county schemes. The grant in aid of maternity and child welfare, which will be distributed in the current year, is estimated to amount to about £200,000.

TUESDAY, FEB. 18TH.

Demobilisation of Medical Men.

Answering Mr. F. ROBERTS, Captain GUEST (on behalf of the Secretary for War) said: Since the armistice 1502 temporary commissioned medical officers of the R.A.M.C. have been demobilised and returned to civil life. This represents in all theatres of war and in the United Kingdom 13·2 per cent. of the total number employed, which compares with 15·1 per cent. of all ranks. It follows, of course, that if units could be demobilised as such it might be possible to release more medical officers, but at the same time it should be understood that the work of medical officers is centralised to the greatest possible extent to avoid wastage. Every endeavour is being made to relieve as many medical officers as possible, but so long as the present system is maintained of demanding early demobilisation of individual officers the process must be retarded, as in many cases substitutes have to be provided.

Combating Venereal Disease.

Sir KINGSLEY WOOD asked the Parliamentary Secretary to the Local Government Board whether a committee would be appointed to inquire and report upon the best methods of combating venereal disease.—Major ASTOR replied: In conjunction with the Admiralty, the War Office, and the Air Ministry, the President of the Local Government Board has recently appointed an inter-departmental committee to consider the prevention and spread of infectious disease arising in connexion with demobilisation, and this committee is dealing, among others, with venereal diseases, recognising the urgency of the matter. I may remind my honourable friend that the Royal Commission on Venereal Diseases reported as recently as 1916.

Combating Influenza.

Sir KINSLEY WOOD asked the Parliamentary Secretary to the Local Government Board what steps his department was taking with a view to combating the influenza epidemic.—Major ASTOR replied: Influenza may be combated (*a*) by continuous research and intelligence work; (*b*) by impressing on each member of the public what in the present knowledge he should do in regard to the disease; and (*c*) by the action of the local health authorities and other bodies for lessening the public opportunities of infection and assisting in the provision of medical nursing and domestic aid to those attacked. My department is energetically pursuing all three lines, and my right honourable friend is continuing and endeavouring to amplify the action which his predecessors directed to be taken for this purpose. In connexion with research and intelligence work the medical officers of the Board are now in active coöperation with other experts outside the department by means of a committee which meets weekly. The action recommended to the public and to local authorities is being further reviewed in a memorandum which will be issued this week.

WEDNESDAY, FEB. 19TH.

Demobilisation of Medical Men.

Mr. LYLE asked the Secretary for War whether he would consider speeding up the demobilisation of medical men and nurses in view of the fact that the civil hospitals were seriously understaffed and also that the civil population was suffering seriously and unnecessarily owing to the Army retaining so many members of these professions.—Captain GUEST (on behalf of Mr. CHURCHILL) said: Every effort is being made to release as many medical men and nurses from the Army as can be spared, but so long as the hospitals both at home and abroad have to care for such large numbers of sick and wounded it will be necessary to retain a large number of medical officers and nurses.

Mr. LYLE: Does the honourable gentleman realise that the health of the people is dependent on the Government's attitude towards this subject?—Captain GUEST: The War Office fully appreciates that, and is doing all it can.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

DOUBLEDAY, F. N., L.R.C.P., M.R.C.S., L.D.S., has been appointed Assistant Dental Surgeon to Guy's Hospital.

JONES, Major-General Sir ROBERT, F.R.C.S., ELMSLIE, Major R. C., F.R.C.S., and TRETHOWAN, W. H., F.R.C.S., Honorary Surgeons to the Royal National Orthopædic Hospital.

MUNDEN, W. P. H., M.D. Lond., Certifying Surgeon under the Factory and Workshop Acts for the Ilminster District of the county of Somerset.

ROWLAND, S., M.B., C.M. Edin., Tuberculosis Officer to the Northampton Corporation.

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Infirmary.—Asst. P. and Two Asst. S.
Aylesbury, Royal Buckinghamshire Hospital.—H.S.
Birkenhead Borough Hospital.—Jun. H.S. £170.
Birkenhead and Wirral Children's Hospital, Woodchurch road.—H.S.
Brighton, Royal Sussex County Hospital.—Jun. H.S. and Asst. H.S. £80.
Burton-upon-Trent County Borough.—Asst. M.O. £350.
Chesterfield and North Derbyshire Royal Hospital.—Sen. H.S. £300.
Coventry and Warwickshire Hospital.—Res. H.P. £200.
Derbyshire County Council.—Venereal Diseases Officer.
Dorchester, Dorset County Asylum.—Second Asst. M.O. £300.
Dudley, Guest Hospital and Eye Infirmary.—Asst. H.S. £120.
Harrogate Infirmary.—H.S.
Herefordshire General Hospital.—Hon. P.'s and Hon. S.'s.
Hospital for Diseases of the Throat, Golden-square, W.—Res. H.S. £100. Also Hon. Anæsth. and Hon. Registrar.
Hospital for Sick Children, Great Ormond-street, W.C.—P.
Hull and Sculcoates Dispensary.—M.O.
Johannesburg, South African School of Mines and Technology.—Prof. of Anat. and Prof. of Phys. £1000.
Leicester Corporation Isolation Hospital and Sanatorium.—Two Res. M.O. £360 and £300. Also Female M.O. £400.
Lewisham Borough.—Tuberculosis Dispensary M.O. £250.
Liverpool Eye and Ear Infirmary.—Hon. Asst. Surgeons.
Liverpool, Royal Southern Hospital.—Three Res. H.S.'s, Two H.P.'s, and One non-Res. C.O. £100.
Manchester, Ancoat's Hospital.—Surg. Officer. £3 3s. per session.

Manchester Children's Hospital, Pendlebury, Out-patients' Department, Garside-street, Manchester.—Asst. M.O. £200.
Manchester Northern Hospital for Women and Children, Park-place, Cheetham Hill-road—H.S. £150.
Merthyr Tydfil Venereal Diseases Clinic.—M.O.
Metropolitan Ear, Nose, and Throat Hospital, Fitzroy-square, W.—Clin. Assts. and Anæsths.
Middlesex Education Committee.—Asst. Sch. M.O. £400.
Middleton-in-Wharfedale Sanatorium, nr. Ilkley.—Asst. Res. M.O. £325.
Mile End Infant Welfare.—M.O.
Mount Vernon Hospital for Consumption and Diseases of the Chest, Northwood, Middlesex.—Asst. Res. M.O. £250.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Res. M.O. £350. Also Anæsthetist. £200. Also Asst. Res. M.O. £250. And other Resident Appointments.
Nottingham Children's Hospital.—Female Res. H.S. and Res. H.P. and Anæsth. £250 and £200 respectively.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Res. M.O. £200.
Reading, Royal Berkshire Hospital.—H.P. £250.
Rousay and Eyilshay, Orkney, Parish of.—M.O. £300.
Royal London Ophthalmic Hospital, City-road, E.C.—Sen. H.S. £150.
Royal National Orthopædic Hospital.—Res. H.S. £200. Also Hon. Anæsth. One guinea per attendance.
St. Thomas's Hospital, S.E.—Asst. Bact. £400. Also Asst. Pathologist and Demonstrator of Morbid Anatomy. £250.
Sheffield City Education Committee.—Sch. Dent. S. £350.
Sheffield Royal Hospital.—Two Hon. Asst. P.'s.
Stannington, Northumberland, Children's Sanatorium.—Female Res. Doctor.
Stockport Infirmary.—Jun. Res. H.S. £200.
Tunbridge Wells General Hospital.—H.S. £160.
Wolverhampton and Midland Counties Eye Infirmary.—H.S. £200.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Castlederg, Wakefield, Wrotham, Gortin, and Broughton Astley.

Births, Marriages, and Deaths.

BIRTHS.

EDMOND.—On Feb. 15th, at Cruck Meole House, Hanwood, Shropshire, the wife of Major W. S. Edmond, F.R.C.S., R.A.M.C., of a daughter.
LONGHURST.—On Feb. 9th, at Ludbroke-gardens, W., the wife of Lieut.-Colonel B. W. Longhurst, R.A.M.C., of a son.
WIGMORE.—On Feb. 13th, at Bernersmede, Blackheath Park, the wife of Capt. (acting Lieut.-Colonel) J. B. A. Wigmore, R.A.M.C., of a daughter.

MARRIAGES.

DEW—JOHNSTON.—On Feb. 13th, at St. Barnabas, Clapham Common, Major J. Wescott Dew, M.C., R.A.M.C., to Marion Harvey, daughter of the late Mr. and Mrs. Alexander Johnson, of Belfast, Ireland.
GILMOUR—TURNER.—On Feb. 14th, at Westerfield Church, Ipswich, Major John Gilmour, M.C., R.A.M.C., to Marjorie Joyce, only daughter of Mr. and Mrs. Leonard Turner, Spursholt, Ipswich.
MILNE—MACDONALD.—On Feb. 12th, at the Parish Church of Glen-Urquhart, by the Rev. Roderick Mackenzie, Major John Morrison Milne, M.C., R.A.M.C. (T.F.), to Annie Dallas, daughter of the late D. D. Macdonald and Mrs. Macdonald, Divach, Drumnadrochit, Inverness-shire.
MOULSON—RYND.—On Feb. 3rd, at Bombay, Captain Geoffrey Moulson, R.A.M.C., to Eileen Helen, daughter of Fleetwood Rynd, late of Mount Armstrong, co. Kildare.
O'BRIEN—DOBBIN.—On Feb. 12th, at St. Aloysius Church, Garnethill, Glasgow, Captain Patrick Aloysius O'Brien, R.A.M.C., to Kathleen, daughter of A. H. Dobbin, J.P., Chestnut Hill, Cambuslang.

DEATHS.

AXFORD.—On Feb. 14th, at Bournemouth, William Henry Axford, M.B., in his 80th year.
BENSON.—On Feb. 16th, at Lower Baggot-street, Dublin, of pneumonia, Charles Molyneux Benson, M.D., F.R.C.S.I., aged 41.
BLAKEWAY.—On Feb. 15th, at St. Bartholomew's Hospital, from pneumonia, Harry Blakeway, F.R.C.S., M.S., B.Sc., of Weymouth-street, W., aged 35.
BRAMWELL.—At 10, Heriot Row, Edinburgh, on Feb. 12th, Martha, beloved wife of Byrom Bramwell, M.D., F.R.C.P.E., LL.D.
MORRIS.—On Feb. 14th, at Halesworth, Suffolk, Pryce Jones Langford Morris, M.R.C.S., L.R.C.P., aged 73 years.
SEAL.—Of pneumonia following influenza, on Jan. 10th, at 2, Catherine Villas, Darjeeling, Charles Edward Baldwin Seal, M.R.C.S., L.R.C.P., aged 54, son of the late Charles William and Sarah Morford Snell Seal, of Basingstoke.
TEMPLE.—On Feb. 13th, at Tunbridge Wells, Lieutenant-Colonel William Temple, V.C., M.B., late Army Medical Staff, aged 85.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BY an Order of the Food Controller dated Feb. 14th lard may again be used in the manufacture of ointment.

THE WELLCOME RESEARCH LABORATORIES, LONDON.—Mr. F. L. Pyman, D.Sc., having been appointed professor of technological chemistry in the Manchester Municipal College of Technology, Mr. T. A. Henry, D.Sc., late superintendent of the laboratories at the Imperial Institute, London, has taken his place as director of the Wellcome Chemical Research Laboratories.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, Feb. 27th.—Papers:—Hon. R. J. Strutt: Scattering of Light by Solid Substances.—Sir James Dobbie and Dr. J. J. Fox: The Constitution of Sulphur Vapour.—Dr. W. G. Duffield, Mr. T. H. Burnham, and Mr. A. H. Davis: The Pressure upon the Poles of the Electric Arc (communicated by Prof. O. W. Richardson).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.1.

Tuesday, Feb. 25th.

GENERAL MEETING OF FELLOWS: at 5.30 P.M.
Occasional Lecture:
Sir Almroth Wright: On Lessons of the War in the Field of Immunisation.

Wednesday, Feb. 26th.

SOCIAL EVENING: at 8.30 P.M.
Professor Sir William Osler will discourse on "Sir Thomas Browne and his 'Religio Medici'—a Bio-bibliographical Demonstration."

MEETINGS OF SECTIONS.

Monday, Feb. 24th.

ODONTOLOGY (Hon. Secretaries—F. N. Doubleday, G. Paton Pollitt, J. Howard Mummery): at 7.30 P.M.
Paper:
Mr. J. F. Colyer: Irregularities of the Teeth in Monkeys.

Tuesday, Feb. 25th.

MEDICINE (Hon. Secretaries—Charles R. Box, W. Cecil Bosanquet): at 5.30 P.M.
Paper:
Dr. Otto Leyton: Transfusion in Diseases of the Blood.

Friday, Feb. 28th.

STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—G. E. C. Pritchard, H. C. Cameron, C. P. Lapage): at 4.30 P.M.
Continued Discussion:
The Ætiology, Prevention, and Non-operative Treatment of Adenoids.
Those wishing to take part in the discussion are requested to forward their names to the Senior Hon. Secretary.

The Royal Society of Medicine keeps open house for R.A.M.C. men and M.O.'s of the Dominions and Allies. The principal hospitals in the metropolis admit medical officers to their operations, lectures, &c. Particulars on application to the Secretary at 1, Wimpole-street, London, W.1.

MEDICAL SOCIETY OF LONDON, 11, Chandos-st., Cavendish-sq., W.
MONDAY, Feb. 24th.—8.30 P.M., Paper:—Mr. R. A. Ramsay: Treatment of Congenital Hypertrophy of the Pylorus.

TUBERCULOSIS SOCIETY, at the Royal Society of Medicine, 1, Wimpole-street, W.
MONDAY, Feb. 24th.—8.30 P.M., Discussion on the Treatment of Tuberculous Glands (opened by Dr. H. de Carle Woodcock).

CHILD-STUDY SOCIETY LONDON, at the Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.
THURSDAY, Feb. 27th.—6 P.M., Lecture:—Dr. P. B. Ballard: The Claim of the Individual Child.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, in the Theatre of the College, Lincoln's Inn Fields, W.C.
MONDAY, Feb. 24th.—5 P.M., Arris and Gale Lecture:—Dr. J. C. Briscoe: The Mechanism of Post Operative Massive Collapse of the Lungs.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
Special Eight Weeks' Course of Post-Graduate Instruction. (Details of the Course were given in our issue of Feb. 15th).

LONDON HOSPITAL MEDICAL COLLEGE, in the Clinical Theatre of the Hospital.
A Course of Lectures and Demonstrations on Surgical Dyspepsia.
MONDAY Feb. 24th.—Lecture I.:—Mr. A. J. Walton.

UNIVERSITY OF LONDON, KING'S COLLEGE, AND KING'S COLLEGE FOR WOMEN.
Course of Six Public Lectures arranged in conjunction with the Imperial Studies Committee of the University on Physiology and National Needs:—
WEDNESDAY, Feb. 26th.—5.30 P.M., Lecture IV.:—Prof. A. Harden: Scurvy, a Disease due to the Absence of Vitamines.

UNIVERSITY COLLEGE, LONDON, Gower-street, W.C.
FRIDAY, Feb. 28th.—5 P.M., Public Lecture:—Dr. J. Murphy: Italian Methods of Surgical Amputation (illustrated by cinematograph films).

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.
Course of Lectures and Discussions on Public Health Problems under War and After-war Conditions:—
WEDNESDAY, Feb. 26th.—4 P.M., Prof. E. W. Hope, O.B.E.: The Rôle of the Ports in the Protection of the Health of the Nation.

CHADWICK PUBLIC LECTURES, at the Rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W.
WEDNESDAY, Feb. 26th.—5.15 P.M., Mr. A. Searle: The Use of Colloids in Health and Disease (illustrated by lantern slides).

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
FRIDAY, Feb. 28th.—5.30 P.M., Sir Oliver Lodge: Ether and Matter. Owing to indisposition Prof. J. A. McClelland will be unable to deliver his discourse on "Nuclei and Ions" as announced.

Notes, Short Comments, and Answers to Correspondents.

THE LAWS OF LIFE.

THE second of a series of lectures on Physiology and National Needs was delivered on Feb. 12th at King's College by Dr. M. S. Pembrey, who took for his subject Physical Training of the Open-air Life. Civilisation, he said, was a constant struggle against some of the fundamental physiological laws; life in factories ran counter to these laws, and human happiness and contentment would not be brought about until the physiologist was allowed to deal with the question. That physiology would lead to better results would be shown by a study of man in his primitive state, when physical education was not governed by any departmental care, but was a part of life itself. Under modern conditions we had fallen away from that instinctive training and followed certain regulations not based on physiological truth. We need not however take a pessimistic view of the matter. The idea that man was so badly constructed that he could be improved by the surgeon or the physiologist was not true. The exercises suggested by the Inter-departmental Committee on Model Courses for Physical Exercise were futile, degrading, dull, and without any physiological basis. Young people had the capacity for developing physical fitness if they were given the opportunity; the child developed control over its muscles and used them as a result of learning to crawl and walk, and in the same way learned to play and to coördinate its various physical systems. By progressive work the heart was trained and respiratory exercises carried out—none of them by word of command. He disapproved of the system of training by word of command, as was done in schools; the children covered each other with a spray of saliva droplets, and the authorities became alarmed on account of the spread of infectious disease in the school. The child should be allowed to enjoy itself with ordinary games in the open air. The capacity for development and exercise was present in the germ from the time of conception. We could never abolish disease because disease was a part of life itself. Resistance to disease could only be increased by subjecting children to the presence of the organisms which were common in their country. If this were not done disease would fall upon virgin soil, and an infection which was not so serious in one part of the country would sweep the country like a plague. The child, therefore, should be subjected at an early age to the diseases which they would find present in their environment, and great immunity would probably result, as evidenced during the war, and by the recent epidemic of influenza.

A certain amount of training, Dr. Pembrey went on to say, must take place if man was to remain in perfect health. The oldest key industry was agriculture, and it was noticeable that the agricultural labourer never revolted even when he had good reasons for so doing. He was badly paid and his hours were long, but he rarely worked against the machine. It was the machine that killed the man because it set the pace. The agricultural labourer set the pace himself or it was set by the animals which he employed; all kinds of movements took place which were controlled by conditions of weather, soil, and crops. The conditions of these men were not ideal in every respect, but the men were "good lives" and had supplied some of the best soldiers. Coal-miners furnished excellent "lives"; they did a large amount of muscular work; they set the pace themselves, but their conditions of life were not physiological. In contrasting the coal-miner with the agricultural labourer it was found that the former compensated himself for adverse conditions—and rightly so—by demanding shorter hours. He was fond of sports and games and insisted upon higher wages, for he had to work against adverse conditions and must be well fed. Hard work never killed a man, but the machine did. Directly the machine became so complicated that the man had only to feed it the result was a dull monotony in which beneficial physical exercise was not needed. Muscular work was a physiological necessity; and many men did more work in foot pounds in games and sports than would be done in manual labour. In the muscular exercise of manual labour the same factors were involved as in sports and games, and it was only by taking guidance on these points that we could acquire the necessary conditions of physical fitness. Directly soldiers went out on manœuvres their sick-rate fell; when they returned to barracks the sick-rate immediately went up; exposure in the open air actually increased their resistance to disease. Factory conditions and open-air work acted in a similar manner.

The best condemnation of the set exercise Dr. Pembrey found in its use in school as a punishment. In nearly all games there was an unconscious education of the nervous system. The digestive system could be developed by muscular work, and combustion and utilisation of food material could be in this way increased, but under modern conditions of work it was easily upset, ill-temper being the result. The cutaneous system was constantly neglected. Physiological and not conventional cleanliness was the thing most needed for body and mind, but this could only be obtained when the components of the skin were working in the proper way, such as occurred if exercise were pushed to sweating. That babies had lost their natural instincts for remaining physically fit was not true, but there was a constant struggle with the child to make him conform to civilised life. Sterilised milk was supposed to enable him to ward off disease, but after sucking from the bottle he was generally put on the floor; he then wetted his fingers in his mouth, brushed up the germs from the floor and afterwards swallowed them. Resistance to disease was the thing to aim at. Tooth-brush drill in the schools not only produced retraction of the gums but transferred germs from one child to another.

Professor E. H. Starling, who presided, said that there could be no doubt as to the advantages of open-air exercise over the artificial method. The greater longevity of the typical Englishman as compared with almost any other race was due to the fact that he loved sports. Open-air exercise for the child would mean that he must have more food. Lack of development was not altogether due to bad conditions, for it must be remembered that we kept our weaklings alive.

THE TREATMENT OF ADENOIDS.

To the Editor of THE LANCET.

SIR,—In reply to the inquiry of "M.D." as to the treatment of adenoids, the methods advocated by Dr. Ormiston are being carried out at the Roll of Honour Hospital at 688, Harrow-road on Tuesdays and Thursdays, 9.30–11.30 A.M. Demonstrations are also held at 60, Greek-street, Soho, on Fridays, 4–6 P.M., in connexion with work done by the Westminster Health Society.

I am, Sir, yours faithfully,
OCTAVIA LEWIN, M.B., B.S.

Wimpole street, W., Feb. 18th, 1919.

MANCHESTER AND DISTRICT RADIUM INSTITUTE.

THE report of the work of this institution for the year 1918 is an interesting and useful document, for it not only gives an account of the valuable results accomplished during the year, but also the uses to which radium has been put during four years' employment at the Institute, together with an indication of the types and classes of diseases in which it has been found useful as a curative or palliative agent. This last section of the report is illustrated with pictures, showing the effect of radium in cases of rodent ulcer, periosteal sarcoma, spring catarrh as affecting the eyeball, carcinoma of the breast, and epithelioma of the lip. Between the first day of January and the last day of December, 1918, 648 patients presented themselves for treatment, an increase of 60 patients over the previous year. Forty-eight cases of malignant disease, exclusive of rodent ulcer, were rendered free from symptoms and signs. This represents 11·75 per cent. of the cancerous cases treated, an improvement of over 2 per cent. over the year 1917. The best results were obtained in carcinoma of the cervix of the uterus. Apparently, also, 18 cases of rodent ulcer were cured, representing nearly half of the total treated. In addition 26 non-malignant conditions were cured. No cures of exophthalmic goitre are reported, but a large number of the patients treated were so much improved that they were able to resume their normal occupations. In this connexion it is interesting to notice that a careful record was kept during the year as to the effects of exophthalmic goitre on the menstrual functions. It was found that 14 per cent. of the patients suffered from excessive hæmorrhage, 35 per cent. were quite normal, and 51 per cent. suffered from periods of amenorrhœa. The number of emanation plates used was 365, and of emanation tubes 968, making a total of 1333. The number of patients demanding treatment steadily increases, and the need for better accommodation is pointed out.

At present the Institute is located at the Manchester Royal Infirmary, in underground rooms and under very inefficient conditions. Considering the character of many of the growths treated hygienic conditions ought to be of the best, in the interests both of worker and patient. As the report says:—

"With the steady increase in the work of the Radium Institute and the tendency to change its aspect from purely experimental effort into an essential part of the medical organisation of Manchester, it now seems to be a suitable time to raise the question of the nature of the premises occupied by the Institute, and the necessity for providing special beds for the treatment of its cases."

All users of radium as a curative agent will find the report of much utility.

INFANT'S TENACITY OF LIFE.

THE following account is given by the mother of the infant, a girl aged 16 years, and is one of two documents supplied by the sub-inspector of police in the district in which the occurrence took place:—

Translation of Statement made by Musammat Oochi, Wife of Ramloo Dhangar, aged 16 years.

I had left my husband's house and returned to my parents for my confinement. I began to have great pain, and for seven days suffered agony. Fever was very bad in the village, and most people had left it, so there was no dayee [nurse] or anyone to help me.

After I had suffered for seven days and nights I could stand the pain of existence no more, so without disturbing anyone I got up and went to a small well at the end of the compound and, holding the wall at the edge of the well, let myself down, and then let go. I fell straight into the water and sank deep; then slowly rose to the surface and sank again. As I was sinking the second time my child was born, and I snatched it to my body and rose to the surface again. The walls were all within reach and I managed to catch hold of a projecting stone, and held myself up with the child pressed against me with my other hand. I did not call for help, but very shortly after this my father came and looked into the well and called, and I answered. Then he let down a basket and I put the child in and he pulled it up. Then he let the basket down again and I got in and he pulled me up. This all occurred at about 3 A.M.

The report from the sub-inspector to the Deputy-General of Police bears out the statement of the mother. It is said that the woman and child died about a week or ten days later, probably from influenza. In this case labour seems to have been hastened by the shock of falling into the well and commencing asphyxiation. The incident is probably unique and is of some medico-legal importance.

BOOKS OF REFERENCE.

BOTH the *New Hazell Annual and Almanack* (London: Henry Frowde and Hodder & Stoughton. Pp. 997. Price 6*s.*) and *Whitaker's Almanack* (London: Whitaker. Pp. 1005. Price 6*s.*) appear late this year owing to the many difficulties of publishing due to the war conditions. Delay has also been caused by the desire of the compilers to include in their respective editions a complete result of the Parliamentary elections. The contents of these two reference books for the office, the library, and the public generally are so well known that it is unnecessary to describe them at the present date, but it may be mentioned that in *Hazell* will be found a short medical review of the year 1918, including the progress towards a Ministry of Health and the history of the influenza epidemic and the efforts made to combat it. *Whitaker* as well as *Hazell* devote considerable space to the war and matters connected therewith, and while necessarily there is some overlapping, the publications supplement each other both in this and other subjects. The delay in publication has enabled the editors to bring information up to date.

COLONIAL HEALTH REPORTS.

Zanzibar.—Mr. R. H. Crofton, acting Chief Secretary to the Government, in his report for 1917, states that at the last Census the population of the island of Zanzibar was 113,624 (42,991 adult males, 49,210 adult females, and 21,423 children), and that of Pemba 83,109 (28,463 adult males, 31,894 females, and 22,752 children), the density of population being 175 per square mile in Zanzibar and 219 in Pemba. The population of the town of Zanzibar was 34,822. The birth-rate (births registered) for the year was 21·0, as against 19·08 per 1000 in 1916. (The death-rate, presumably by inadvertence, is not specified in the report.) Measures are being taken to ensure more accurate registration of births, and it is considered probable, when the registration of all births is secured, that it will be found that the births equal, or even exceed, the deaths, contrary to opinions based on the figures now available. The islands were free from any severe epidemic of disease during the year, and the general health of the community was fair. Twenty-three cases of cerebro-spinal meningitis were notified during the year. Of these, 15 occurred among the King's African Rifles recruits from the mainland. All the cases reported died with the exception of 2 remaining under treatment at the infectious diseases hospital on Dec. 31st. Eleven deaths were certified as due to dysentery; 5 of these gave a history of having recently arrived from German East Africa. There were 31 deaths from malaria, 4 from blackwater fever, and 41 from tuberculosis. Seven cases of small-pox occurred (all imported from Bombay), of which two died. There was no case of plague. The systematic collection of rats in the town was carried on as in past years; 13,647 were examined microscopically with negative results. During the year 504 cases, principally sick and wounded officers and men of His Majesty's naval and military forces, were treated at the European hospital. In the native hospital 1038 in-patients and 7475 out-patients were treated. Thirty-five in-patients and 2406 out-patients were dealt with in the dispensary at Mkokotoni. In the infectious diseases hospital at Gulioni, 126 patients and 85 contacts were admitted during the year and there were 17 deaths. There is one Government hospital in Pemba, at Chake Chake, and dispensaries at Mkoani and Weti; 378 in-patients and 7260 out-patients in all were treated in these establishments. The number of lepers in the two islands amounts probably to about 450, of whom 107 are segregated in one settlement in Zanzibar (which is subsidised by the Government and administered by the Roman Catholic Mission under the supervision of the medical officer of health) and 177 in three settlements in Pemba, while the remainder are at large. There is a poor-house in Zanzibar which is practically a home for the incurable. The number of patients at the beginning of 1917 was 55, the number admitted during the year 99, the number of discharged 28, and the number who died 64. The large roll of deaths is accounted for by the fact that the institution takes in many cases in the last stages of disease.

H. W. C.—The X ray tubes in question were of German make and are now unobtainable. Messrs. Cossor and Andrews make tubes for therapeutic purposes. A 6 in. Macalister-Wiggin tube, seasoned by frequent running for fairly long periods with as large a current as it will bear without becoming too hot to hold in the hand at any part, takes at first a current as small as 0·4 to 0·5 ma., but sooner or later it becomes more tolerant, and when it will easily carry 1 ma. for 15 minutes it will have a resistance equal to about a 4½ in. spark-gap in air. Such a tube, in spite of the increased distance necessitated by its size, will frequently turn a Sabouraud pastille in eight minutes. As the tube gets older this time may be shortened by using an increased current, but this is not advisable except in cases where a single dose is required; in a ringworm case the tube would probably become overheated before the usual five doses had been given. The preparation or "seasoning" is troublesome, but once secured the tube is well adapted for therapeutic work, and if used with care and discretion has a surprisingly long and useful life. In a busy clinic two or more are necessary so as not to put any one of them to the strain of continuous service.

BOOKS, ETC., RECEIVED.

BLACKWELL, MR., Broad-street, Oxford. LONGMANS, GREEN AND CO., New York.
Wheels, 1918. Third Cycle. Edited by Edith Sitwell. 4*s.* 6*d.*

CHAPMAN AND HALL, London, and J. WILEY, New York.
Pharmacy, Theoretical and Practical, including Arithmetic of Pharmacy. By E. A. Ruddiman, M.D. 8*s.* 6*d.*
Examination of Milk for Public Health Purposes. By J. Race, F.I.C. 8*s.* 6*d.*

FORSTER, GROOM AND CO., London.
The Whole Duty of the Regimental Medical Officer. By Captain P. Wood, R.A.M.C. 2*s.* 6*d.*

LIPPINCOTT (J. B.) COMPANY, London and Philadelphia.
A Text-book of Chemistry. By S. P. Sadtler, Ph.D., and Others. 5th ed. 21*s.*

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. H. G. Adamson, Lond.
B.—Dr. W. L. Brown, Lond.; Miss L. Brown, Wigan; Mr. E. J. Bean, Lond.; Mr. E. J. Burdon, Lond.; Dr. G. S. Buchanan, C.B., Lond.; Dr. H. Barber, Derby; Dr. P. Bousfield, Lond.; Surg.-Com. P. H. Boyden, R.N.; Dr. A. E. Boycott, Radlett.
C.—Messrs. Chamberlain, Donner, and Co., Manchester; Mr. H. Cooper, Lond.; Christian Science Committee on Publication, Lond.; Chicago School of Sanitary Instruction; Chadwick Trust, Lond., Sec. of; Central Council for District Nursing in London; Mr. F. V. Conolly, Lond.
D.—Dr. W. H. Dickinson, Newcastle-upon-Tyne.
F.—Dr. S. B. Figgis, Brighton; Factories, Chief Inspector of, Lond.; Major E. R. Fothergill, R.A.M.C.
G.—Dr. W. Gordon, Exeter; Dr. H. J. Gauvain, Alton; Major S. B. Gray, M.C., U.S.A.; Dr. A. K. Gordon, Lond.
H.—Mr. C. J. Heath, Lond.; Prof. W. Hall, Lond.; Dr. L. Hirschfeld; Bt.-Col. L. W. Harrison, D.S.O., R.A.M.C.; Mrs. E. Handcock, Lond; Dr. F. Hernaman-Johnson, Lond.
J.—Mr. C. F. Jenner, Boscombe; Mrs. G. E. Jukes, Lond.; Lt.-Col. A. L. Johnson, C.A.M.C.
K.—Dr. H. C. Kidd, Bromsgrove.
L.—Dr. C. E. Lakin, Lond.; Miss E. Lowry, M.B., Lond.; London Dermatological Society; Mr. D. Ligat, Lond.; Mr. K. A. Lees, Lond.; Mr. J. B. Lamb, Lond.; Local Government Board, Lond.; Major J. H. Lloyd, R.A.M.C.(T.); Miss O. Lewin, M.B.; Dr. C. Lundie, Glasgow; Prof. H. Littlejohn, Lond.
M.—Dr. R. Morton, Lond.; Mr. A. P. Melville, Edinburgh; Mr. J. B. Macalpine, Aberdovey; Medical Research Committee, Lond.; Dr. H. J. May, Southampton; Dr. N. Moore, Lond.
N.—National Provident Institution, Lond., Actuary and Secretary of; National Food Reform Association, Lond.
O.—Mr. H. Oppenheimer, Lond.; Mrs. K. O'Conor, Ware.
R.—Capt. J. Ryle, R.A.M.C. (S.R.); Royal Statistical Society, Lond.; Royal Society, Lond; Royal Institution of Great Britain, Lond.; Capt. C. H. L. Rixon, R.A.M.C.; Royal Society of Arts, Lond.
S.—Mr. S. Sanyal, Calcutta; Mr. F. C. Stringer, Fazeley; Dr. E. F. Skinner, Sheffield; Southwark, Mayor and Mayoress of.
T.—Mr. H. M. Traquair, Edinburgh; Mr. P. N. Turner, Lond.; Dr. L. Thatcher, Edinburgh.
V.—Mr. R. M. Vick, Lond.; Dr. P. C. Varrier-Jones, Cambridge.
W.—Dr. C. Watson, Edinburgh; Dr. J. A. Wilson, Warrington; Prof. W. Wright, Lond.; Capt. R. T. Williamson, R.A.M.C.(T.); Dr. W. H. Wynn, Birmingham; Mr. H. T. Warner, Lond.

Communications relating to editorial business should be addressed exclusively to The Editor of THE LANCET, 423, Strand, London, W.C. 2.